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SEALIFT AND THE U. S. MERCHANT MARINE:
VULNERABILITIES AND IMPLICATIONS
FOR DEFENSE

by

Jonathan Christian

December, 1993

Thesis Advisor:

R. Mitchell Brown III

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Sealift and the U. S. Merchant Marine:
Vulnerabilities and Implications for Defense

by

Jonathan Christian
Lieutenant, United States Navy
B.S., U. S. Merchant Marine Academy, 1986

Submitted in partial fulfillment
of the requirements for the degree of

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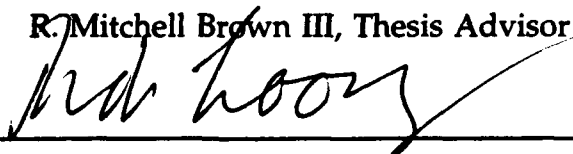


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ABSTRACT

This study determines which of the two critical variables--vessel or personnel availability--will have the greater impact on strategic sealift given the post-Cold War geo-political and fiscal environment, and examines the key implications of a depressed U. S.-flag Merchant Marine (and maritime industry) on contingency planning. In addition to reviewing the evolution and development of the U. S. Merchant Marine and considering the repercussions of past legislation on the current state of the industry, a synopsis of recently-proposed maritime reforms and government-administered sealift programs is provided. Further, shipbuilding and maritime labor trends are discussed. Using Operations *Desert Shield/Storm* as a conceptual model for future sealift scenarios, this analysis concludes that *mariner* availability, not ship availability, will be the sealift "Achilles' heel" in a nearly simultaneous two MRC scenario. This study includes the views of maritime industry representatives and government officials as primary source data, and offers recommendations on potential sealift manning options and opportunities.

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TABLE OF ABBREVIATIONS

AB	Able Bodied Seaman
AOR	Area of Responsibility
APS	Afloat Prepositioning Ships
APF	Afloat Prepositioning Force
APL	American President Lines
ASUW	Anti Surface Unit Warfare
CBO	Congressional Budget Office
CDS	Construction Differential Subsidy
CENTCOM	U. S. Central Command
CINC	Commander-in-Chief
CINCCENT	Commander-in-Chief, U. S. Central Command
CIVMAR	Civil Service Mariner
CMMD	Commission on Merchant Marine and Defense
COI	Certificate of Inspection
COMSC	Commander, Military Sealift Command
CONOPS	Contingency Operations
CONUS	Continental United States
DMAC	Deck Engine Mechanic
DoD	Department of Defense
DoN	Department of the Navy

DoT	Department of Transportation
DWT	Deadweight Tons
EUSC	Effective United States Control
FMC	Federal Maritime Commission
FSS	Fast Sealift Ships
FWT	Fireman-Water Tender
GMDSS	Global Maritime Distress and Safety System
GRT	Gross Registered Tons
IMO	International Maritime Organization
LDT	Light Displacement Tons
LMSR	Large Medium-Speed RO/RO
LNG	Liquid Natural Gas (carrier)
LASH	Lighter Aboard Ship (vessel)
LO/LO	Lift-On/Lift-Off
LOTS	Logistics Over-The-Shore
LRC	Lesser Regional Contingency
MARAD	Maritime Administration
MEB	Marine Expeditionary Brigade
MEBA	Marine Engineers' Beneficial Association
MMIRRG	Merchant Marine Individual Ready Reserve Group
MLSF	Mobile Logistic Support Force
MM&P	Masters, Mates, and Pilots

MPF	Maritime Prepositioning Force
MPS	Maritime Prepositioning Ships
MRC	Major Regional Contingency
MRS	Mobility Requirements Study
MSC	Military Sealift Command
MSTS	Military Sea Transport Service
MTMC	Military Traffic Management Command
NASSCO	National Steel and Shipbuilding Company
NAVSEA	Naval Sea Systems Command
NDRF	National Defense Reserve Fleet
NOAA	National Oceanic and Atmospheric Administration
NTPF	Near Term Prepositioning Force
OBO	Oil/Bulk/Ore (carrier)
ODS	Operating Differential Subsidy
OPDS	Offshore Petroleum Delivery System
QMED	Qualified Member of Engine Department
RRF	Ready Reserve Force
R/O	Radio Officer
RO/RO	Roll-On/Roll-Off
ROI	Return On Investment
ROS	Reduced Operating Status
SEABEE	Sea-barge (vessel)

SLOC	Sea Lines of Communication
SMESA	Special Middle East Shipping Agreement
SPOD	Sea Ports of Debarkation
SRP	Sealift Readiness Program
SWA	Southwest Asia
TPFDD	Time Phased Force Deployment Data
TRANSCOM	U. S. Transportation Command
ULCC	Ultra Large Crude Carrier
UNREP	Underway Replenishment
USMMA	United States Merchant Marine Academy
VLCC	Very Large Crude Carrier
VTa	Voluntary Tanker Agreement

EXECUTIVE SUMMARY

Often described as America's "fourth arm of defense," the U. S. Merchant Marine is poised on the verge of extinction. The precipitous decline in the size of the U. S.-flag merchant fleet and the concomitant decrease in the supply of maritime labor *vis a vis* other maritime nations must not be viewed exclusively as an economic concern devoid of military significance. Indeed, the lack of American-flag sealift--and the dearth of mariners needed to crew government- and commercially-operated vessels during national emergencies--are not issues which can be dismissed lightly under the rubric of maritime "survival of the fittest." Rather, the foremost lesson to be relearned is that there is no long-term substitute for a dependable, U. S.-flag merchant *fleet-in-being*. Only through adequate sealift can the United States maintain the military capability to respond quickly and decisively to regional crises, while simultaneously executing a global strategy based on credible, sustained forward presence.

As demonstrated during Operations *Desert Shield* and *Desert Storm*, the absence of a healthy and robust U. S. Merchant Marine will impact adversely on the ability of the Department of Defense to move equipment and supplies quickly and efficiently to distant theaters in support of national--and *coalition*--interests and objectives. Despite important similarities with previous mobilizations, one is warned against making the Persian Gulf War *the* conceptual or policy model for future sealift mobilizations in this post-Cold War environment. Although

aspects of the Persian Gulf sealift response dovetail nicely with the Vietnam sealift effort, and are instructive as planning tools for the next regional contingency, placing too much emphasis on either the conduct or the characteristics of this conflict does as much to distort and misrepresent the state of the U. S. Merchant Marine as to ignore the geo-political and military dynamics in August, 1990.

Despite the immense volume of military cargo transported to Southwest Asia, the sealift experience was, at best, a qualified success. Although the United States was given "carte blanche" to effect a two-phase sealift campaign over a seven month period unencumbered by battle damage to vital port facilities and with no attrition of shipping, American-flag *surge* sealift was inadequate to satisfy logistics requirements. Nonetheless, there was sufficient sealift--American-flag and otherwise--in this case to carry millions of tons of prepositioned, surge, and sustainment equipment, fuel, and supplies to Southwest Asia. In fact, a conscious decision was made by civilian and military leaders not to include certain DoD-sponsored sealift programs in the call-up in order to preserve U. S.-flag interests in the international shipping market.

Unlike the formal readiness conditions and activation timetables associated with *ships*, there is no similar guidance for ensuring that an adequate number of mariners will be available to crew strategic sealift vessels in a national emergency. In fact, pre-Persian Gulf War manpower estimates predicted that some 9,000 seamen would be readily available to man the Ready Reserve Force (RRF). In

reality, extraordinary measures were implemented just to obtain the 2,700 mariners needed to crew *eighty percent* of the Force. In short, the no-notice activation of the Ready Reserve Force exhausted the available supply of maritime labor--arguably under the best of politico-military circumstances.

Maritime employment projections, coupled with recent funding for vessel acquisition and conversion, only reinforce the hypothesis that *mariner* availability will emerge as the *sine qua non* of sealift in the twenty-first century. Not only will the shortages of highly-skilled mariners continue in response to the decline of the U. S.-flag Merchant Marine, but the manpower pool will be insufficient to crew the projected 142-ship Ready Reserve Force *and* inadequate to meet the demands imposed by a "nearly simultaneous" two Major Regional Contingency scenario. Further, whether or not foreign-flag shipping is available to carry military cargo is irrelevant to the near-term manning problem. That an abundance of foreign shipping *could* be available does nothing to alleviate the underlying causes of the manpower shortfalls or address the fact that Ready Reserve Force vessels still must be crewed in a timely fashion. Until the configuration of the Ready Reserve Force (and other sealift assets) is changed to reflect the handling and propulsion systems found in modern merchant fleets, measures must be implemented to maintain a cadre of active mariners possessing the requisite deck and engineering-related skills to crew those older ships. This thesis includes recommendations on potential sealift manning options and opportunities.

I. INTRODUCTION

A. BACKGROUND

Often described as America's "fourth arm of defense," the United States Merchant Marine serves a dual function: during peacetime, commercial ships are needed to facilitate the import and export of products and raw materials which are vital to our economy and national security; during times of war and national crises or emergencies, approximately ninety-five percent of all cargo, equipment, and supplies is moved by merchant vessels to the theaters of operations. To be sure, the merchant marine has played a pivotal role in the economic development and military success of the U. S. throughout our history. Notwithstanding the provisions of the Merchant Marine Act of 1936, and despite the recent successes of the U. S. Merchant Marine during Operations *Desert Shield* and *Desert Storm*, the American maritime industry is poised on the verge of extinction.

Traditionally, those governmental agencies and military organizations charged with overseeing sealift mobilization and readiness programs such as the Maritime Administration (MARAD), Military Sealift Command (MSC), and the U. S. Transportation Command (USTRANSCOM), have directed their main efforts toward the acquisition, charter, and maintenance of militarily-useful merchant ships for contingency operations. Many argue, however, that the most troublesome issue facing the maritime industry, MARAD, and the Department of

Defense (DoD) is the shortage of highly-trained mariners--capable of deploying rapidly on short- or no-notice during crises and operating for extended periods.

B. INTEREST AND PURPOSE

As a Naval Officer, a licensed Third Officer in the U. S. Merchant Marine, and a student of strategic planning, the author believes that few leaders understand or appreciate the unique and immediate problems facing the U. S. Merchant Marine, and hence, the vulnerabilities of the strategic sealift concept outlined in the Navy and Marine Corps White Paper "... *From The Sea.*" The typical Naval officer knows relatively little about either the U. S. maritime industry or strategic sealift concepts--regardless of background or warfare specialty. It may come as no surprise that adequate sealift is simply assumed, and that the movement of cargo by merchant ships at sea appears wholly transparent against the back-drop of flight operations, gunnery exercises, and daily inspections. Even for surface warfare professionals, participation in an underway replenishment (UNREP) with an MSC-operated tanker represents the extent to which the U. S. Merchant Marine--and strategic sealift *per se*--is incorporated into naval planning and thinking.

In undertaking this study, it is the intent of the author to examine fundamental maritime issues involving merchant vessel and personnel availability, and to assess their potential effects on sealift planning as the twenty-first century approaches. This is not, however, a thesis which seeks to promote

or justify the need to maintain—at any price—a healthy and prosperous American-flag Merchant Marine. The argument for a healthy and robust Merchant Marine shall stand on its own merits.

Herein lies the puzzle: given the post-Cold War political and budgetary environment, which of the two critical variables-- vessel or mariner availability-- will have the greater impact on strategic sealift, and what are the key ramifications for naval planners? This research relies heavily on the plethora of facts and figures derived from specific maritime studies as well as on a rich review of the literature on this subject. In addition to literary research, every effort was made to incorporate the views of government and maritime industry representatives as primary source data.

C. THE NATURE OF THE PROBLEM

As outlined previously, the U. S. Merchant Marine supports America's national security requirements and objectives during times of peace and war. On the one hand, merchant vessels and their crews ply the vast oceans, carrying goods and materials to and from the United States and its foreign markets. Certainly, these privately owned and operated ships maintain the critical transoceanic link between our domestic economy and those of our competitors and allies. If, however, the rationale (or criteria) for maintaining an American Merchant Marine could be measured in economic terms according to profit and loss, one might challenge the need for U. S.-flag commercial carriers.

After all, merchant ships can be constructed and repaired faster and at less cost at overseas shipyards. Indeed, foreign shipbuilders are not hamstrung by minimum wages, overtime rates, or vociferous labor unions to the same degree as their American counterparts. Neither are these shipyards hindered by excessive government regulation and overt intervention. Similarly, foreign shipping companies can operate their vessels at considerably less expense than U. S.-flag carriers. These foreign ships are manned by fewer merchant seamen who, by virtue of their lower standards of living, command neither the pay nor the benefits which normally accrue to American mariners.

But national security is not simply an issue to be measured in terms of economic profit and loss. On the contrary, a global military strategy that embraces forward deployment of troops and forces overseas *requires* (and assumes) sufficient lift to cover anticipated contingencies. As expressed by the naval leadership in the joint Navy/Marine Corps White Paper "... *From The Sea*," sealift is an "enduring mission"--arguably, one that requires a dependable U. S.-flag Merchant Marine. Today, the ability of the U.S. Merchant Marine to fulfill the sealift requirements placed on it during a national emergency by the DoD and the MARAD is, at best, questionable.

D. ASSUMPTIONS

In the course of researching and writing this thesis, the author has made the following assumptions:

- that sustaining the U. S. Merchant Marine is vital to the economic and military security of the United States;
- that the present policies and government regulations affecting the maritime industry not only discourage private investment, but place it at a disadvantage *vis a vis* other maritime nations;
- that a few American shipbuilding and operating companies will continue to survive in spite of depressed freight rates, tax disincentives, and reduced federal subsidies, and;
- that, selected interviews from a variety of sources would provide valuable insight into the issues and problems currently facing the U. S. maritime industry.

E. ORGANIZATION AND METHODOLOGY

This thesis is organized into seven chapters: this introductory chapter, five research chapters, and a conclusion based on the results of this research. Chapter II provides an historical review of the U. S. Merchant Marine (and maritime industry) from its colonial genesis to the commencement of Operation *Desert Shield*. Chapter III examines not only the state of the Merchant Marine, but places into context the status of maritime labor and domestic shipbuilding. Chapter IV discusses the various programs and categories of sealift which are available to the DoD and the Maritime Administration (MARAD). Given these sealift resources, Chapter V of the thesis critiques the performance--and the availability--of U. S.-flag ships *and* mariners during Operation *Desert Shield* and *Desert Storm*.

By highlighting the near-ideal politico-military circumstances surrounding the Persian Gulf War, Chapter VI not only dispels the fallacy of employing a "best case" mobilization to predict future sealift performance, but also discusses

manning options (and opportunities) with an eye towards sealift planning for the twenty-first century. And finally, Chapter VII presents the conclusions of the *Desert Shield/Storm* case analysis and the supporting research. These conclusions are solely those of the author and represent neither the views of the Department of Defense, the Navy, the Maritime Administration, nor the maritime industry.

II. AN HISTORICAL PERSPECTIVE

Since the earliest days of the Republic, merchant shipping and domestic shipbuilding have been instrumental in defining and shaping the economic and military potential of the United States. By any standard, though, the U. S.-flag merchant marine has had a turbulent—and distinguished—past. Punctuated by periods of extended conflict, the U. S. Merchant Marine has navigated the peaks and valleys of government subsidies, freight rates, and wartime operations. In order to appreciate the present state of the merchant marine, it is necessary to examine its evolution and development. This chapter provides a brief history of the U. S. Merchant Marine, giving due regard to the policies and legislation that have affected the maritime industry.

A. THE EARLY YEARS

Although the focus of this historical review is the state of the U. S. maritime industry since the unparalleled buildup of World War II, no examination would be complete without including an appreciation of the pre-World War II trends in U. S. shipping, shipbuilding, as well as related maritime legislation.

1. Evolution and Development

The United States originated from seafaring people. During the seventeenth century, colonial settlers came to the new world from England on

sailing ships. From those earliest days, the sea represented the economic and communications nexus between England and its fledgling colonies. By 1638, thirty-one years after the Plymouth Company failed in its first attempt to settle a colony, the first American shipyard (employing sixty carpenters, fitters, and sail makers) was established near Portland, Maine [Ref. 1:p. 75]. Shipbuilding became an increasingly important industry as American colonies settled near the ocean. By 1676, shipbuilders of Boston had constructed thirty ships between 100 and 250 tons, 200 vessels between fifty and 100 tons, and roughly 500 ships of lesser tonnage. Further, by the end of the 1700's, over 1,000 vessels were registered as having been built in the New England area [Ref. 2:p. 47].

The early government of the United States recognized the necessity of sustaining a strong merchant marine. Maintaining a fleet of U. S.-flag merchant ships would ensure that critical trade routes could not be held hostage by foreign governments seeking to impose their politico-economic will or by otherwise unreliable foreign-flag shipping companies. From 1783 until a federal government was established, the U. S. Merchant Marine fell victim to the protectionist trade policies of Great Britain. Since America was no longer a colony, Britain not only banned all U. S. vessels from British colony trade, but prohibited English trading companies from purchasing American-built merchant vessels and goods. In response, the first federal regulation affecting American-built ships was legislated during the First Continental Congress in April, 1789. Congress ruled that only American-built vessels could fly the American flag. Additionally, the Congress

authorized a ten percent reduction of import tariffs if the goods were carried in U. S. hulls. [Ref. 2:pp. 50-51]

2. The Golden Years: 1789-1860

Between 1789 and 1828, Congress legislated over 50 tariff and shipping laws intended to protect and nurture American ship operators and shipbuilders. These laws contributed directly to the tremendous growth in the merchant marine, from 123,893 tons on December 31, 1787, to 411,438 tons in 1792.¹ In addition to import tax and flagging restrictions, foreign shipping companies were subject to heavy taxation by individual states of the Union. Further, U. S.-built and owned ships participating in coastwise trade were only required to pay tonnage taxes once a year while foreign flag ships had to pay each time they entered an American port. These practices made it unprofitable for foreign shipping companies to operate in U. S. coastwise trade.²

Indeed, these were "golden years" for American merchant shipping and shipbuilding. The period between 1820 and 1828 witnessed the continued growth of the American-flag merchant fleet from 583,657 tons to 757,998 tons, and U. S. bottoms carried ninety percent of all American commerce. Table 2.1 lists tonnages

¹ This represents a 232% increase in gross tonnage over five years. For statistics on shipbuilding, see Clinton H Whitehurst, Jr., The U. S. Shipbuilding Industry: Past, Present, and Future, Naval Institute Press, Annapolis, 1986.

² These government-sponsored actions were a prelude to *cabotage*, whereby foreign flag vessels were banned entirely from domestic trade.

**TABLE 2.1 MERCHANT VESSELS BUILT AND DOCUMENTED
IN THE UNITED STATES FOR SELECTED YEARS
1798-1855**

Year	Number of Vessels ¹	Gross Tons
1798	635	49,435
1800	995	106,261
1805	--- ²	128,507
1810	----	127,575
1815	1,329	155,579
1820	557	51,394
1825	1,000	116,464
1830	648	58,560
1835	725 ³	75,107
1840	871	118,309
1845	1,038	146,018
1850	1,360	272,218
1855	2,024	588,450

Source: U.S. Bureau of Census, Historical Statistics of U.S., Colonial Times to 1957, Washington, D.C., 1960, p.448.

¹ Includes canal boats and barges.

² Data not available.

³ Figure computed from a nine month period.

built and documented in the United States between 1798 and 1855. The era of wooden ships proved to be one of the high-water marks for American shipbuilding.

It was during the period preceding the American Civil War that the first government subsidy program was established. In 1847, Congress passed legislation to give a U. S.-flag shipping company (American Collins Line) financial aid so that it could compete with British operators. This direct subsidy allowed

the company to design and invest in larger, faster, more efficient commercial vessels. As a result of these capital expenditures, American Collins attracted a larger percentage of the shipping market--to the detriment of England. Between 1847 and 1858, \$14.4 million dollars was appropriated in subsidy payments to American shipping companies. [Ref. 2: pp. 54-55]

3. The Civil War to 1936

Inasmuch as the period prior to the Civil War was considered the "Golden Age" for American-flag shipping and shipbuilding, the Civil War christened a prolonged period of stagnation and decline for the U. S. Merchant Marine. Aside from the carnage endured by both sides, this period was significant to the maritime industry for two important reasons. First, each side ravaged the other's merchant vessels with stunning regularity. In fact, Southern privateers claimed 110,000 tons of Northern shipping during the War [Ref. 2:p. 57]. The destruction of merchant vessels during the War had a profound effect on waterborne commerce. Both U. S. and foreign shippers were loath to ship goods in American hulls for fear of reprisal from the opposing side. Therefore, U. S. shipowners saw no alternative other than to sell their vessels to foreigners. Between 1861 and 1865, approximately one-third of the American merchant fleet

(751,595 tons) had been sold to foreign shipowners at a fraction of their original cost.³

In addition to the repercussions of the Civil War on U. S. shipping, American shipbuilders were caught unprepared for the technological changes that swept the maritime industry. With the advent of steel-hulled vessels and steam power, foreign shipyards quickly bypassed the U. S. shipbuilding industry. Although wood had been relatively abundant, the cost of iron to American yards was much higher than that of their European counterparts. These advances translated into faster, more efficient ships with high endurance and enhanced cargo-carrying capacity. As a result of these technological changes and economic realities, U. S. steel-hulled ships cost between forty to seventy-five percent more than a European vessel of comparable displacement. As expected, U. S. shipping capital flowed to overseas markets as investors turned to foreign yards--and foreign registry--to remain competitive in a cutthroat industry. By 1901, the American-owned, foreign-built (and registered) fleet consisted of 136 vessels, totaling 672,000 tons [Ref. 2:pp. 57-58].

Not only was the maritime industry forced to adapt to these technological changes, but U. S. shipping companies were plagued by declining revenues (as a result of rail transportation) and by a shift in federal priorities. By

³ For a detailed analysis of Civil War shipping and shipbuilding, see Clinton H. Whitehurst, Jr., The Defense Transportation System: Competitor or Complement to the Private Sector?, American Enterprise Institute for Public Policy Research, Washington, D.C., 1976, pp. 11-12.

1866, only thirty-two percent of American *foreign* commerce was carried by U. S.-flag ships, and by 1890, only 12.8 percent was carried in U. S. hulls [Ref. 2:p. 58]. This negative trend deepened with the turn of the century. Only one American-flag shipping company capable of transatlantic service remained in operation in the final years of the nineteenth century, and by 1910, only 8.7 percent of foreign trade was carried in American bottoms [Ref. 1: p. 82]. In any event, this heavy reliance on foreign-flag ships to move American products abroad proved to have dire consequences as the United States entered World War I.

At the beginning of World War I, foreign ships--previously available to the American shipper--returned home to service their countries' wartime needs. As nations withdrew their fleets from essential trade routes, and with virtually no merchant marine to fill this transportation void (and demand), the United States was incapable of providing for its economic well-being or satisfying its military requirements. As a result, freight rates for goods bound for Europe and elsewhere skyrocketed [Ref. 3:p. 14].⁴ In response to this situation, the Congress passed the Shipping Act of 1916. In addition to establishing a U. S. Shipping Board for the purpose of "encouraging, developing and creating a naval auxiliary ... and a merchant marine" to meet the commercial demands and wartime needs of the United States, the Act paved the way for the establishment of a

⁴ For instance, the freight rate on cotton from a Southern U. S. port to Great Britain rose from \$2.50 to \$60 a bale. See also: Edmund A. Walsh, Ships and National Safety: The Role of the Merchant Marine in a Balanced Economy, Georgetown University Press, Washington, D.C., 1934, p. 8.

government-owned enterprise--the Emergency Fleet Corporation--to build, operate, and own merchant vessels.⁵ By 1922, the United States possessed a formidable merchant fleet, totaling 13.5 millions tons (half of it government-owned) at the price of \$3.3 billion [Ref. 3:p. 15]. From the end of the World War I until the early 1920's, a shipping boom existed due to the movement of men and materials to and from European shores.

It should be noted that this buildup was neither inexpensive nor efficient. Although the postwar U. S. Merchant Marine was at least five times larger than the prewar fleet, a significant cost differential existed between privately owned and government-owned shipyards. Private yards profited through lump-sum and cost-plus contracts. Vessels built in private shipyards cost the taxpayers in excess of two and one-half times the cost of those ships built in government yards. Notwithstanding these costs, American yards delivered less than one million tons by the end of the War--many ill-fitted for commercial use [Ref. 1:p. 85]. Further, one-third of all vessels authorized for construction by the U. S. Shipping Board were constructed after the armistice was signed! [Ref. 2:p. 65]

⁵ U. S. Congress, Shipping Act of 1916, Public Law No. 260, 64th Congress, First session, 1917, p. 1. The U. S. Shipping Board was the forerunner of the U. S. Maritime Administration (MARAD).

B. WORLD WAR II

Following the cessation of hostilities after World War I, the government was faced with having to decide what should be done with the merchant fleet. The Merchant Marine Act of 1920, commonly referred to as the Jones Act, was the Congressional response. Section 1 of the Jones Act states:

That it is necessary for the national defense and for the proper growth of its foreign and domestic commerce that the United States shall have a merchant marine of the best equipped and most suitable types of vessels sufficient to carry the greater portion of its commerce and serve as a naval or military auxiliary in time of war or national emergency ultimately to be owned and operated privately by citizens of the United States; and it is hereby declared to be the policy of the United States to do whatever may be necessary to develop and encourage the maintenance of such a merchant marine, and, insofar as may not be inconsistent with the express provisions of the Act, the United States Shipping Board shall, in the disposition of vessels and shipping property as hereinafter provided, in the making of rules and regulations, and in the administration of the shipping laws always in view this purpose and object as the primary end to be obtained.

This legislation served two important purposes: first, to provide for the transfer of the merchant fleet purchased by the U. S. Shipping Board during the World War I to private shipping companies; and secondly, to establish an arrangement under which those merchant vessels could compete successfully with those of other nations [Ref. 2:p. 66]. Of particular significance is the language of the Act as it relates to the function of U. S.-flag ships during wartime. The Act formally recognizes the auxiliary role of American merchant vessels during war or crisis [Ref 4:p. 26].⁶

⁶ Further, the Merchant Marine Act of 1920 established a construction loan fund that made available low-interest capital to potential shipowners. Although designed to stimulate shipbuilding,

Due to the overwhelming number of ships available to U. S. shipping companies in the early twenties, American-flag vessels accounted for fifty-one percent of all waterborne commerce to and from the United States. Unfortunately this market share was not maintained and, except for World War II, has fallen ever since.⁷ The Jones Act failed to revive the Merchant Marine. A surplus of aging ships, a decline in international trade as a result of the depression, and mismanagement of government shipping discouraged the construction of new vessels [Ref. 1:p. 87]. Recognizing the need to reinvigorate the American U. S. Merchant Marine, Congress legislated on the eve of World War II a foundation upon which a competitive (and militarily-useful) American merchant fleet would be predicated. This foundation was the Merchant Marine Act of 1936.

Prior to 1936, government aid programs were hidden under the pretense of mail subsidy payments. President Franklin Roosevelt, convinced of the economic and military need for a strong merchant marine, advocated an end to the disguised subsidies. Instead, he proposed that the difference between U. S. and foreign-flag costs in areas such as vessel construction, repairs, wages, insurance, and subsistence, be paid by the federal government [Ref. 4:p. 26-27]. Additionally, national defense features (such as gun tugs) could be added at

the provision did not achieve its intended objective. An expanded construction loan fund was authorized by the Merchant Marine Act of 1928.

⁷ By 1933, the share of cargo carried by U. S.-flag ships had declined to thirty-three percent.

government cost if approved by the Department of the Navy. The legislative outcome of these proposals was the Merchant Marine Act of 1936. The Declaration of Policy (Section 101 of the Act) still serves as the foundation of federal policy with respect to the U. S. Merchant Marine and maritime industry:

It is necessary for the national defense and development of its foreign and domestic commerce that the United States shall have a merchant marine (a) sufficient to carry its domestic water-borne export and import foreign commerce of the United States and to provide shipping service essential for maintaining the flow of such domestic and foreign water-borne commerce at all times, (b) capable of serving as a naval and military auxiliary in time of war or national emergency, (c) owned and operated under the United States flag by citizens of the United States insofar as practical, (d) composed of the best-equipped, safest, and most suitable types of vessels, constructed in the United States and manned with trained and efficient citizen personnel, and (e) supplemented by efficient facilities for shipbuilding and ship repair. It is hereby declared to be the policy of the United States to foster the development and encourage the maintenance of such a merchant marine.

Before discussing the unprecedented buildup of the U. S. Merchant Marine during World War II, it is necessary to describe briefly the major provisions of the Merchant Marine Act of 1936. To create a fleet of U. S.-flag merchant ships, built in American Shipyards, and owned and operated by American citizens, this Act established a variety of direct and indirect subsidy programs--codified by administrative Title.⁸ Direct subsidy payments to shipowners included the

⁸ The Act also established the U. S. Maritime Commission for the purpose of administering the financial aid to ailing shipping companies. Since that time, the promotional and regulatory duties of the U. S. Maritime Commission were assigned to the Maritime Administration (MARAD) and the Federal Maritime Commission (FMC) in 1950 and 1961 respectively.

Construction Differential Subsidy (CDS) under Title V of the Act and the Operating Differential Subsidy (ODS)--Title VI payments--of the Act.

CDS payments covered the difference in cost between a ship constructed or repaired in an American shipyard and the cost of building or reconstructing an identical vessel in a foreign yard. The intent of this subsidy program was to foster the higher-cost American shipbuilding industry through cost parity. Similarly, ODS payments were designed to encourage operation of U. S.-built ships with American crews by covering the difference in operating costs between American ship operators and their foreign counter-parts. Again, this subsidy was intended to achieve a modicum of parity between U. S. and foreign shipping companies.⁹

Several provisions of the Act provided indirect benefits to American shipowners and operators. Although these subsidies did not involve the direct outlay of government funds, they afforded monetary guarantees and awarded

⁹ Operating costs include wages for officers and crew, unemployment benefits, and marine insurance. ODS was limited, however, to ships carrying cargo in an "essential service" of U. S. foreign trade. An essential trade route is defined as a "route between ports of the United States coastal area or areas to foreign markets which has been determined ... to be essential for the promotion, development, expansion, and maintenance of the foreign commerce of the United States." For a comprehensive review of ODS/CDS, see: David Bess, Marine Transportation, The Interstate Printers and Publishers, Inc., Danville, Ill., 1976, pp. 78-86; Allen R. Ferguson et al, The Economic Value of the United States Merchant Marine, The Transportation Center at Northwestern University, Evanston, Illinois, 1961, p. 41; and Ernst G. Frankel, Regulation and Policies of American Shipping, Auburn House Publishing Company, Boston, 1982, pp. 50-57.

preferential treatment to U. S. shipping companies. Specifically, Title XI insures commercial loans and mortgages to U. S.-flag shipowners to finance a fixed percentage of the construction, reconstruction, or repair costs for American-built ships [Ref. 2:p. 89].¹⁰ Surely, the Federal Ship Mortgage and Loan Insurance Program was popular with U. S. shipping companies. Not only could the mortgage be extended to twenty-five years (covering the anticipated life of the vessel), but permitted ship operators to finance their debt over the long term--assuring a relatively stable income.¹¹

By the outbreak of hostilities in Europe, the U. S. Merchant Marine's percentage of world tonnage had dropped to 16.6 percent. Although the Neutrality Act of 1934 prohibited U. S.-flag vessels from entering the territorial waters of any European belligerent, the Lend-Lease Act of 1941 not only allowed the United States to circumvent neutrality laws, but also acted as a catalyst for the depressed shipbuilding industry. Faced with the emergency demand for ships, the U. S. Maritime Commission turned to private yards to mass-produce merchant vessels. Once the Commission determined that existing yards could not satisfy the overwhelming demand, it authorized the construction of government-owned

¹⁰ These loans guaranteed up to 87.5 percent of the cost for non-subsidized vessels and a maximum of 75 percent for subsidized ships.

¹¹ Although the Merchant Marine Act of 1936 reaffirmed several earlier cargo preference provisions, the Cargo Preference Act of 1954 established the "50-50 rule" or cargo preference clause. Under this provision, at least fifty percent of all government-sponsored cargo must be transported on privately-owned U. S.-flag commercial vessels (as available).

shipyards. Again, as in World War I, the shipbuilding industry was able to respond in time of need. An extraordinary number of ships were produced. In all, over 6,400 merchant vessels, including 2,742 Liberty and 531 Victory-class ships, were constructed between 1937 and 1945 [Ref. 5:p. 27].¹²

It must be remembered that ships represent only one-half of the shipping equation. The fleet could not sail into harm's way without first having merchant *mariners* trained to load, navigate, and operate those ships. Although there were twenty-two national unions representing American seamen by 1943, by all estimates it took four times as long to train a man for sea duty than to build a merchant ship [Ref. 6:pp. 92-93]. The goal of the War Shipping Administration was to train 250,000 merchant mariners for duties aboard ship. Officers in training at the United States Merchant Marine Academy at Kings Point and other government-funded schools were offered commissions as Ensigns, USNR, once they passed their license examinations. Unlicensed seamen would "sign on" through the union halls upon completion of a thirteen-week indoctrination course

¹² Although the figures vary according to source, it is generally accepted that the merchant fleet had quadrupled in number of ships and quintupled in cargo capacity to 40 million tons--representing sixty-percent of the world's tonnage--by the end of World War II. In the aggregate, over 4 million men, women and children produced over 36,960,592 tons of merchant shipping at a cost of \$12 billion. See also: Gerard J. Mangone, Marine Policy for America, Lexington Books, 1977, pp. 90-91.

[Ref. 7:p. 152]. Within a year of the Japanese attack at Pearl Harbor, one hundred thousand men were in various stages of the training pipeline.¹³

C. THE KOREAN WAR

Following World War II, the United States was faced with having to dispose of a surplus of general-purpose, government-owned merchant vessels. Despite the wartime losses, a fleet of over 4,500 vessels—more than all other nations combined—were available for sale [Ref. 2:p. 91].¹⁴ To resolve this problem, Congress enacted the Merchant Ship Sales Act of 1946. Although this Act provided the administrative guidelines for the demobilization and disposal of this surplus fleet, the objective of the Act was to sell as many vessels as possible on a priority basis to American shipping companies and then to allied nations. By 1950, 823 ships had been sold to U. S. citizens, and over 1,100 vessels had been retailed for foreign registry [Ref. 2:p. 91].¹⁵ Those vessels not sold were either

¹³ Two hundred million dollars had been spent on maritime training over the course of the War. Despite their wartime service, nearly 200,000 seamen discovered that there was no GI Bill of Rights to provide loans, no education or insurance benefits as was given to armed forces veterans. Additionally, monetary compensation for injuries was difficult to obtain. See also: Felix Riesenbergs, Jr., Sea War: The Story of the U. S. Merchant Marine in World War II, Rinehart and Company, Inc., New York, 1956, pp. 300-301.

¹⁴ 604 U. S. merchant ships were lost by direct enemy action and another 139 vessels were sunk by maritime hazards as a result of wartime conditions.

¹⁵ These sales reduced the American percentage of the world shipping tonnage to 36.4 percent by 1948. The primary recipients of these surplus vessels were the British, French, Danish and Norwegian fleets. See Gerard J. Mangone, Marine Policy for

scrapped or "mothballed" into the U. S. National Defense Reserve Fleet (NDRF) for mobilization in future contingencies.

Like the post-World War I shipping environment, American-flag carriers enjoyed the economic windfall of a post-War boom in maritime trade (at least until the economies of Europe and Asia returned to pre-war conditions). With the outbreak of the Korean War in June, 1950, tremendous demands again were placed on U. S.-flag merchant shipping. The newly created Military Sea Transport Service (MSTS) quickly activated its fleet of 174 merchant ships, including fifty transports, forty-eight tankers, and twenty-five general-purpose (cargo) ships. In addition to this mobilization, the MSTS expanded its sealift capability by calling into service nearly 600 privately-owned and NDRF vessels [Ref. 3:p. 20].¹⁶

Unlike the chaotic experience of World War II, however, the government had sufficient time to match manpower requirements to anticipated ship activation schedules. (During World War II, the U. S. was forced to train mariners at the same time that vessels were being built). For this crisis, former seamen were recruited from shoreside jobs as ships were recalled to active service from the NDRF and made ready for sea. [Ref. 4:p. 166]. With the end of

America: The United States at Sea, Lexington Books, 1977, p. 91.

¹⁶ In 1956, the Secretary of the Navy was given responsibility for all sealift. For a detailed description of military transportation management, see Clinton H. Whitehurst, Jr., The Defense Transportation System: Competitor or Complement to the Private Sector, American Enterprise Institute for Public Policy Research, Washington, D.C., 1976, p. 20.

hostilities in Korea, coupled with an economic recession, the American merchant marine once again experienced a reduction in the global demand for transoceanic shipping.

D. VIETNAM

The crisis in Southeast Asia placed a renewed demand on U. S.-flag shipping. Although ninety-eight percent of all cargo destined for Vietnam was carried by ship, the American merchant marine and shipbuilding industry fell victim to depressed freight rates and foreign competition. Despite government-sponsored CDS and ODS subsidies, the total amount of tonnage engaged in foreign trade under the American flag scarcely increased in twelve years, from 9.14 million tons in 1950 to 10.2 million tons in 1962 [Ref. 1:p. 91]. Further, during the same twelve-year period, the share of U. S. foreign trade carried on American-flag vessels declined steadily to only nine percent for all types of cargoes.¹⁷

During the early part of the decade, two trends emerged in the shipbuilding industry. Certainly, over the long-term, fewer vessels have been built in American shipyards. Yet by 1960, the construction of general-purpose cargo ships had given way to the fabrication of cargo-specific (and in some cases system-

¹⁷ By 1962, approximately twenty percent of all outbound cargo from the U. S. fell under the cargo preference clause of the Cargo Preference Act of 1954.

specific) vessels.¹⁸ This shift towards greater vessel specialization not only marked a fundamental transformation in the carriage of goods by sea, but heralded a new era in shipbuilding technologies [Ref. 5:p. 28]. Relatively slow and inefficient breakbulk cargo ships were being replaced by the technologically complex containership, roll-on/roll-off (RO/RO) vessels, liquid natural gas (LNG) ships, and lighter aboard ship (LASH) vessels.

The second trend in American shipbuilding, one that affected all ships--particularly petroleum and chemical tankers--concerned vessel size. Larger ships with greater cargo-carrying capacities were built to take advantage of maritime economies of scale. For U. S.-flag shipping companies, operating costs per voyage (wages, fuel, and insurance) cut deeply into corporate profits. The most economical solution was to build and operate fewer--but larger--ships. Mammoth ships, such as very large crude carriers (VLCCs) and ultra large crude carriers (ULCCs), were designed to maximize the shipping company's return on investment (ROI) while reducing ship operating costs. [Ref. 5:p. 28]

In 1965, the Department of Defense activated the National Defense Reserve Fleet to assist active U. S.-flag merchant ships in delivering equipment to Vietnam. From June 30, 1965 through June 30, 1969, over 160 ships were called into service, repaired, and assigned to private shipping companies. Of the 33.2 million tons of cargo carried to Vietnam during this period, twenty-six percent

¹⁸ A "system" refers to the method of loading or unloading cargo for a particular ship.

was carried by Maritime Administration (MARAD) vessels, sixty-seven percent by privately owned ships, and the remaining seven percent of the total tonnage by MSTs owned (or chartered) vessels [Ref. 1:p. 94].¹⁹ Again, as in the Korean War, mariners were recruited directly from the union halls or from the pool of former seamen to man these additional vessels.

Throughout the 1960's, the share of U. S. foreign commerce carried on American-flag vessels continued to decline. In spite of the sealift required to sustain military forces in Southeast Asia, by 1965 this share of tonnage had decreased to 7.5 percent, and by 1969--the height of the Vietnam War--only 4.6 percent of foreign trade was shipped under the American flag [Ref. 8:p. 13]. Intense price competition from foreign-flag shipping companies and overseas shipyards made it increasingly difficult for U. S. shipbuilders and operators to attract business.

Another piece of legislation passed by Congress during the Vietnam War was the Merchant Marine Act of 1970. Similar to the 1936 Act, this Act attempted to improve the competitive standing of both the American Merchant Marine and the U. S. shipbuilding industry. In order to increase the number of vessels built in domestic shipyards, Congress mandated the construction of three hundred

¹⁹ The MSTs consisted of 436 vessels, including those government-owned and chartered from shipping companies. See also: Clinton H. Whitehurst, Jr., The Defense Transportation System: Competitor or Complement to the Private Sector?, American Enterprise Institute for Public Policy Research, Washington, D.C., 1976, p. 21.

ships between 1971 and 1980 [Ref. 2:p. 93].²⁰ This Act encouraged the construction of ships with standard designs which could be produced in series. In addition to increasing Title XI (Federal Ship Mortgage Insurance) funds, The Merchant Marine Act of 1970 permitted a shipbuilder to apply for and receive Title V (CDS) funds directly from the federal government.²¹

The Act also had far-reaching effects on the U. S. Merchant Marine. To control the high cost of maintaining an American-flag fleet, the Act indexed wages for seamen and officers and assigned an upper limit on Title VI (ODS) subsidies. Further, crew size would be determined in the design/construction phase rather than by union (or company) negotiation after the vessel was launched [Ref. 4:p. 27]. Lastly, the 1970 Act made ODS funds available to foreign non-liner *bulk* trade. This provision enabled owners and operators of oil/bulk/ore (OBO) ships to compete on an even keel with their foreign-flag rivals [Ref. 2:p. 95].

²⁰ The Merchant Marine Act of 1970 would provide an average of thirty ships per year to be constructed in U. S. yards. Such a production "run" would not only help to make shipyards more cost efficient, but could help to stabilize a relatively perishable workforce.

²¹ The Act also created the Commission on American Shipbuilding. The Commission was empowered to investigate, report on, and recommend changes to the shipbuilding industry.

E. THE REAGAN BUILD-UP (OR BUILD-DOWN?)

At the time of President Reagan's inauguration in January, 1981, the average age of the American merchant fleet was twenty-three years. Although the number of U. S.-flag vessels continued to decline steadily, the fact that older, relatively inefficient ships were being retained in commercial service actually caused the total cargo carrying capacity of the U. S. Merchant Marine to increase. Faced with another shipping recession, American-flag shipping companies had no choice but to pursue a competitive advantage over foreign-flag companies through improved economies of scale.

In retrospect, with the new President came a renewed sense of hope in the maritime industry. Promises of a 600-ship Navy by the President, the Secretary of Defense, and the Secretary of the Navy only fueled the industry-wide optimism. By revising the tax laws in 1981 (and retaining the investment tax credit for capital purchases), the Reagan Administration appeared to be committed to a strong defense infrastructure as well as a revitalized maritime industry. Despite these encouraging signals, the Administration eliminated Construction Differential Subsidy (Title V) funds from the FY-82 budget proposal. Additionally, Title XI (Federal Ship Mortgage Insurance) funds were curtailed [Ref. 5:p. 28, 42].²² As expected, these funding drawdowns had a profound effect on American shipowners and shipbuilders alike. On the one hand,

²² Although the last CDS contracts were written in FY-81, existing CDS commitments were honored by the federal government.

shipowners and operators saw no fiscally-sound alternative other than to construct new vessels—and periodically repair those in service—at foreign shipyards. On the other hand, private shipyards sustained the brunt of the budgetary cuts. With the lack of domestic commercial shipbuilding and repair, these privately-owned yards came to rely heavily on *naval* construction and depot availabilities to meet their payrolls. However, naval contracts were not a panacea for the shipbuilding industry. Not only was competition for government contracts between private shipyards keen, but each was obliged to compete against eight government-owned facilities as well [Ref 5:p. 28].

In the spring of 1984, President Reagan signed into law the Shipping Act of 1984. This Act not only relaxed restrictions on shipping conferences that limit and control competition, but also expanded antitrust immunity for U. S.-flag liner companies engaged in foreign trade.²³ To a certain degree, the Act deregulated American-flag liner companies. In doing so, shipping companies engaged in foreign trade were better able to compete successfully in the international shipping market. [Ref. 5:p. 41]

At the time of George Bush's inauguration in January, 1989, the American-flag fleet ranked eighth behind Cyprus in deadweight tonnage (DWT).²⁴

²³ A shipping conference is the mechanism by which price setting is established, and specific routes and cargoes divided among companies.

²⁴ Liberia, Panama, and Japan, respectively, ranked at the top among the maritime nations of the world in DWT. Further, the American fleet (privately-owned) ranked eleventh in ships

Although eight vessels were delivered to U. S. ship operators during the previous fiscal year, twenty-nine merchant ships (totaling 536,515 DWT) were stricken from the U. S. register and scrapped [Ref. 9:p. 39]. Following the inauguration of President Bush, the Department of Transportation articulated a new National Transportation Policy on March 7, 1990. This Policy acknowledged the depressed state of the maritime industry:

The U. S. Merchant Marine and shipbuilding industries Have declined steadily in recent decades. It is clear that Federal programs, including cargo preference rules and direct subsidies, have not succeeded in keeping the U.S. flag Merchant Marine fleet viable and competitive in world trades. Many of the program provisions are anachronisms and an ill-advised burden on the Nation's Merchant Marine.

In keeping with this public proclamation, the downward trend in dead-weight tonnage and number of ships continued.²⁵ By January, 1, 1990, the active fleet had dropped to 407 vessels (of 1,000 gross tons and over). Further, the share of tonnage carried by American-flag ships had deteriorated to 4.4 percent [Ref. 10:p. 13].²⁶ Table 2.2 ranks the merchant fleets of the world according to DWT and numbers of ships. As illustrated in this table, the U. S. Merchant Marine

(oceangoing steam and motor vessels of 1,000 gross tons and over).

²⁵ Released by the President on March 8, 1990, the National Transportation Policy (NTP) stressed the importance of the maritime industry to naval sealift.

²⁶ Despite an exhaustive ten-month DoT evaluation and assessment of U. S. National Transportation Policy in FY-90, few legislative and policy gains were achieved. For a detailed narrative of maritime legislative efforts, see U. S. Department of Transportation, MARAD '90, The Annual Report of the Maritime Administration, 1991.

ranked fourteenth in number of vessels, and ninth in deadweight tonnage on the eve of Iraq's invasion of Kuwait in August, 1990. In fact, no new commercial vessels (of 1,000 gross tons or larger) were delivered by private shipyards in FY-1990 [Ref. 10:p. 1]. Within days following this invasion, the Military Sealift Command (MSC) requested activation of *all* seventeen roll-on/roll-off (RO/RO) vessels in the Ready Reserve Force (RRF). This petition for sealift by the MSC marked the beginning of what would be the largest recall and activation of the U. S. Merchant Marine since the Vietnam War. An analysis of the U. S. sealift effort during Operations *Desert Shield* and *Storm* is provided in Chapter V.

**TABLE 2.2 MAJOR MERCHANT FLEETS OF THE WORLD AS OF
JANUARY 1, 1990**

Country	Number of Ships ¹	Rank	DWT (000)	Rank
Liberia	1,409	3	88,275	1
Panama	3,189	1	70,537	2
Greece	914	7	36,537	3
Japan	1,007	6	36,237	4
Cyprus	1,054	5	29,729	5
Norway	587	8	28,800	6
USSR	2,428	2	25,735	7
Britain ²	545	10	24,810	8
United States	407	14	20,439	9
Bahamas	530	11	19,719	10
China	1,281	4	19,611	11
Philippines	558	9	14,948	12
South Korea	429	13	11,909	13
Singapore	407	15	11,494	14
Italy	479	12	10,514	15
All Others ³	7,759		155,195	
TOTAL	22,983		604,489	

Source: U.S. Department of Transportation, MARAD '90, The Annual Report of the Maritime Administration, April, 1991.

¹ Ocean-going merchant ships of 1,000 gross tons and over.

² British Dependent Territories.

³ Includes 248 U.S. Government-owned ships of 3,978,000 DWT.

III. THE CURRENT STATE OF THE MARITIME INDUSTRY

Today, the U. S. maritime industry triad--the components of which include commercial ship operating companies, ship construction and repair facilities, and maritime labor--are in immediate jeopardy of becoming lost to foreign competition and legislative procrastination. Further, the fact that the maritime industry is segregated along professional lines not only contributes to, but also magnifies the difficulty in reaching equitable solutions to industry-wide problems. As to be expected, each faction tends to assume unique, self-serving positions on common issues including retirement plans and benefits; even closely-allied industries or companies rarely agree on specific issues. The lack of consensus and open rivalry among and between elements of this triad has prevented the U. S. maritime industry from attaining the level of solidarity needed to compete in the international shipping market or stimulate domestic maritime reform.

A. MERCHANT FLEETS OF THE WORLD

In the three years since the sealift buildup for Operations *Desert Shield* and *Storm*, the position of the United States *vis a vis* other maritime nations has continued to deteriorate. According to MARAD data, the privately-owned U. S. merchant fleet fell in ranking from fourteenth to sixteenth in numbers of ships, and from ninth to tenth place in total DWT [Ref. 11:p. 14]. Not only did the

United States rank behind the Bahamas (a favorite choice as a flag of convenience) and the People's Republic of China in both categories, but as a percentage of oceanborne foreign trade, the share of commercial freight carried on American-flag bottoms dropped to 4.0 percent by the close of 1991 [Ref. 11:p. 15].²⁷ Further, at a time when U. S. shipping is experiencing negative growth, three of the top ten merchant fleets have realized remarkable growth. Of these leading maritime countries, Liberia, Panama, and the Bahamas individually registered fleet DWT growth in excess of 2 million gross tons in 1992 [Ref. 12:p. 145].

This precipitous decline in the U. S.-flag merchant fleet *vis a vis* other maritime nations cannot be viewed simply as an economic issue devoid of military significance. The shortage of U. S.-flag sealift is not a problem that can be dismissed under the rubric of maritime "survival of the fittest," or relegated to career-minded bureaucrats for prompt legislative action. On the contrary, as demonstrated in Operations *Desert Shield* and *Storm*, the lack of a healthy and robust U. S.-flag Merchant Marine (and maritime infrastructure) will impact adversely on the ability of USTRANSCOM, through MSC and MTMC, to move equipment and supplies to distant theaters in support of national (and multinational) objectives.

²⁷ Based on preliminary data.

B. MARITIME PROMOTIONAL POLICIES

The Merchant Marine Act of 1936 put into place a variety of legislative mechanisms to reinvigorate the U. S. maritime industry including differential payments and a ship mortgage insurance program. Although the Annual Report of the Maritime Administration for fiscal year 1992 reveals eleven ODS (Title VI) contracts covering fifty-four liner vessels and fifteen contracts covering thirty-one vessels in the bulk trades, all ODS subsidies are due to expire on December 31, 1997.²⁸

In contrast to the \$215.7 million in net ODS outlays during FY-1992, the Construction Differential Subsidy (Title V) payments ceased in FY-1989. In fact, no CDS contracts have been let since FY-1981. Table 3.1 provides a synopsis of government ODS and CDS outlays by fiscal year. In total, over \$13.1 billion in ODS/CDS subsidies has been channeled into the U. S. Merchant Marine and maritime industry.

C. THE AMERICAN OCEANGOING FLEET

At the commencement of FY-1993, the privately-owned, deep-draft American Merchant Marine (including the Great Lakes Fleet) totaled 425 ships with a cargo

²⁸ According to press reports, the Clinton Administration has decided to allow all ODS agreements to expire. See: Don Phillips, "White House Plans to Halt Subsidies for Merchant Fleet," Washington Post, 1993, pp. A-1 and A-19, col.1.

TABLE 3.1 MARITIME SUBSIDY OUTLAYS, 1936 - 1992

Fiscal Year	Total CDS	Total ODS	Total ODS & CDS
1936-1955	251,607,830	341,109,987	592,717,817 ¹
1956-1960	164,687,414	644,115,146	808,802,560
1961	101,361,086	150,142,575	251,503,661
1962	138,713,238	181,918,756	320,631,994
1963	93,417,209	220,676,685	314,093,894
1964	78,273,410	203,036,844	281,310,254
1965	86,135,010	213,334,409	299,469,419
1966	72,018,076	186,628,357	258,646,433
1967	81,087,566	175,631,860	256,719,426
1968	96,086,293	200,129,670	296,215,963
1969	94,010,178	194,702,569	288,712,747
1970	95,252,247	205,731,711	300,983,958
1971	135,088,321	268,021,097	403,109,418
1972	141,698,479	235,666,830	377,365,310
1973	185,568,541	226,710,926	412,279,467
1974	198,905,452	257,919,080	456,824,532
1975	239,795,663	243,152,340	482,948,003
1976	243,712,448	386,433,994	630,146,442
1977	218,531,643	343,875,521	562,407,164
1978	156,009,547	303,193,575	459,203,122
1979	200,776,929	300,521,683	501,298,612
1980	265,079,866	341,368,236	606,448,102
1981	208,113,192	334,853,670	542,966,862
1982	184,485,217	400,689,713	585,174,350
1983	84,511,019	368,194,331	452,705,350
1984	13,694,523	384,259,674	397,954,197
1985	4,692,013	351,730,642	356,422,655
1986	-416,673	287,760,640	287,343,867
1987	420,700	227,426,103	227,846,803
1988	1,236,679	230,188,400	231,425,079
1989	0	212,294,812	212,294,812
1990	0	230,971,797	230,971,797
1991	0	217,574,038	217,574,038
1992	0	215,650,854	215,650,854
TOTAL	3,834,553,116	9,285,616,426	13,120,169,542

Source: U.S. Department of Transportation, MARAD'92, The Annual Report of the Maritime Administration, May, 1993.

¹ Includes CDS outlays during World War II, as well as the Mariner (Class) Ship Construction Program.

carrying capacity of roughly 19.5 million DWT [Ref. 11: p. 8].²⁹ Statistics published by Lloyd's Register of Shipping indicate that the United States logged the single greatest reduction of any maritime nation—down 2,062,000 GRT from 1991. Additionally, that segment of the American fleet engaged in international "liner" service has waned to just eight operating companies and 110 ships [Ref. 12:p. 145]. The oceangoing U. S. Merchant Marine is classified in Table 3.2 according to type, number of ships, DWT, and average age. As illustrated in Table 3.2, the U. S. merchant fleet is composed mostly of tankers and intermodal vessels (including containerships, LASH vessels and RO/ROs). Although intermodal-type ships are among the youngest and most efficient in the American Merchant Marine, the bulk of the fleet DWT resides with relatively old tankers.

Certainly, civilian policymakers and military planners are concerned by the decline in the number of oceangoing ships flying the American flag. However, the fact that the average age of the fleet is 18 years should not be dismissed lightly. As ships near the end of their (projected) commercial service lives, shipowners must begin to consider economically-viable alternatives to remain competitive with their foreign counterparts. This is particularly true for shipowners engaged in the tanker trade. As material condition, age, and concerns over vessel safety combine with the absence of government CDS/ODS funding,

²⁹ The Oceangoing component of the U. S. merchant fleet consisted of 386 vessels, of which 348 ships of 17.1 million DWT were active. The remaining 38 vessels were laid up in inactive status.

**TABLE 3.2 U.S. OCEANGOING MERCHANT FLEET
SPRING, 1993**

PRIVATELY-OWNED VESSELS¹			
Type	Number of Ships	DWT (000)	Average Age
Combo ²	3	30	41
Breakbulk	36	605	21
Bulk	19	893	16
Intermodal ³	128	3,836	15
LNG	13	936	14
Tanker	169	12,591	21
Tug/Barge	18	640	12
TOTAL	386	19,531	18
Sources: Table 3.2 represents a fusion of two U.S. Department of Transportation Tables: <u>Maritime Industry Key Statistics</u>, Spring, 1993, and <u>MARAD '92</u>, The Annual Report of the Maritime Administration, May, 1993, p.12. ¹ Figures include the active and inactive fleet. ² The term "Combo" refers to combination passenger-cargo ships. ³ "Intermodal" vessels include container ships, barge-carrying vessels, and RO/ROs.			

depressed freight rates, and prohibitively high operating expenses, shipowners will be forced to adjust to market dynamics. This economic adjustment can take many forms: shipowners may opt to transfer their active ships to a "flag of convenience;" or they may choose to build new vessels at considerably less expense in foreign shipyards. Another less attractive alternative would be to sell (or scrap) the ships at market value. In any event, considering that the expected

life of a merchant vessel is between 20 and 25 years, many shipowners are fast approaching (and in most cases have reached) this decision threshold.³⁰

D. U. S. SHIPBUILDING, CONVERSION, AND REPAIR

The U. S. shipbuilding industry has gone without government subsidies since 1981. At a time when countries engaged in shipbuilding were escalating aid programs for their respective yards, the Reagan Administration unilaterally terminated the CDS program for U. S.-flag vessels built in American shipyards. According to John Stocker, President, Shipbuilders Council of America, foreign governments not only drove unsubsidized American shipyards out of the commercial shipbuilding business through direct and indirect support of shipowners and builders, but "encouraged the dumping of ships on an unprecedented scale" [Ref. 13:p. 3].³¹ Table 3.3 provides a summary of ships on

³⁰ In 1992, the chief executive officers of American President Companies, Ltd. and CSX Corporation announced that unless maritime reforms applicable to liner vessels engaged in foreign trade were adopted, American President Lines, Ltd. (APL) and Sea-Land Service, Inc. (Sea-Land) would reflag their U. S.-flag ships to foreign registry beginning in 1995. Another American-flag steamship company--Lykes Brothers Steamship Company--recently transferred part of its fleet to foreign-flag.

³¹ In addition to ship financing and direct shipyard aid (in the form of government loans, guarantees, and grants), many shipbuilding nations provide funding for R&D. Since 1988, the average **annual** shipbuilding aid budgets for South Korea, Germany, and Japan--the top three OECD shipbuilding subsidizers respectively--have totaled 6.6 billion dollars collectively. For a detailed analysis of foreign shipbuilding subsidies, refer to: Shipbuilders Council of America, International Shipbuilding Aid: Shipbuilding Aid Practices of the Top OECD Nations and Their Impact on U. S. Shipyards, June, 1993.

TABLE 3.3 WORLD MERCHANT SHIPBUILDING AS OF OCTOBER 1, 1992			
SHIPS ON ORDER OR UNDER CONSTRUCTION			
Rank	Country	DWT (000)	% of World Total
1	Japan	23,073	37.1
2	South Korea	13,944	22.4
3	Denmark	3,579	5.7
4	China	3,578	5.7
5	Taiwan	2,411	3.9
6	Romania	2,114	3.4
7	Brazil	1,712	2.8
8	United Kingdom	1,628	2.6
9	Germany	1,488	2.4
10	Poland	1,482	2.4
	All Others	7,235	11.6
TOTAL		62,244	
Source: U.S. Department of Transportation, <u>Maritime Industry Key Statistics</u> , Maritime Administration, Spring, 1993.			

order or under construction as of October 1, 1992. Not surprisingly, Japan and South Korea top the list of states with robust shipbuilding programs. In both cases, efficient practices at the shipyard worker level were accompanied by aggressive subsidy programs to produce state-of-the-art ships at less expense (and more quickly) than U. S. shipyards.

In stark contrast, only one shipbuilding order for a vessel larger than 1,000 gross tons was placed with a U. S. shipyard in FY-1992. In fact, National Steel

TABLE 3.4 U.S. SHIPBUILDING ORDERBOOK (Military and Commercial Vessels as of February 1, 1993)

Type	Number	Tonnage ¹
Combatant Ships		
Cruisers	4	28,062
Destroyers	24	159,000
Aircraft Carriers	2	158,000
Submarines	18	140,500
Other ²	12	195,732
Auxiliary Ships	4	38,982
T-Ships ³	13	127,655
Commercial	2	20,617 ⁴
TOTAL	79	868,548
Source: U.S. Department of Transportation, <u>Maritime Industry Key Statistics</u> , Maritime Administration, Spring, 1993.		
¹ Military -1,000 LDT and over; Commercial -1,000 GRT and over.		
² "Other" includes Amphibious Assault Ships (LHDs), Dock Landing Ships (LSDs), and Mine Countermeasures Ships (MCMs).		
³ "T" designates civilian-manned ships, both government-owned and privately-owned, operated by or under charter to the Military Sealift Command (MSC).		
⁴ Approximate tonnage.		

and Shipbuilding Co. delivered the first large (713 ft.) commercial vessel to Matson Navigation since 1987. Table 3.4 demonstrates clearly that the workload in American shipyards is driven by Navy ship construction contracts rather than by orders for commercial vessels. Some suggest that unless there is a resurgence of commercial shipbuilding activity within the next few years, most of the privately-owned shipyards will be forced to close by 1998 [Ref. 14:p. iii].

In addition to new ship construction, privately-owned shipyards have been awarded ship conversion contracts recently by the Departments of Defense and Transportation. On July 30, 1993, the Naval Sea Systems Command (NAVSEA) awarded contracts to two shipbuilding companies for five RO/RO-type vessels. These ships will be modified to meet the performance-based criteria defined by the Department of Defense Mobility Requirements Study (MRS). Of the five vessels, three former MAERSK L Class ships will be converted at National Steel and Shipbuilding Company (NASSCO) in San Diego; and two vessels--purchased from the East Asiatic Company--will be serviced at Newport News Shipbuilding. All five ship conversions are scheduled for delivery to the U. S. Navy by December, 1995. [Ref. 15]³²

Within the last year, the Department of Transportation also purchased twelve RO/RO-type vessels for inclusion into the MARAD-controlled Ready Reserve Force (RRF). Acquired from a variety of foreign- and American-flag shipowners, these twelve RO/RO vessels will undergo an "upgrading process" at private shipyards prior to MARAD acceptance. It is expected that U. S. Coast Guard-mandated upgrades, coupled with pre-delivery drydockings and DoD-sponsored installations of selected defense features, could stimulate "more than

³² These five vessels are the first of twenty MRS-directed Large Medium-Speed RO/Ros (LMSRs) to be acquired through new construction or conversion.

\$60 million of shipyard work to be performed at private U. S. repair facilities."

[Ref. 16]³³

E. MARITIME INDUSTRY EMPLOYMENT

Employment statistics in all sectors of the U. S. maritime industry--seagoing, longshore, and shipyard--continue to reflect the depressed state of the international shipping market and the decrease in the number of U. S.-flag ships. Table 3.5 provides a breakdown of maritime *billets* within each employment category.³⁴ In relative terms, seagoing employment aboard American-flag ships experienced the largest drop of any maritime category, plummeting 20.64% in the total number of billets from 1991 levels. Although deactivation of government-owned vessels in the aftermath of the Persian Gulf War accounts for the majority of billets lost during the reporting period, this reduction in the number of government-sponsored positions must not disguise the fact that the number of commercial billets available aboard U. S.-flag ships continues to fall in response to market demand.

In absolute terms, however, shipyard labor experienced the largest reduction of any maritime category. According to MARAD data introduced in Table 3.5,

³³ See also: U. S. Department Of Transportation, "Ready Reserve Force Acquisitions," Maritime Administration, June, 1993.

³⁴ Whereas seagoing and shipyard employment is related directly to domestic (both commercial and government) needs, longshore employment is largely a function of the volume of traffic--regardless of flag--through U. S. ports.

TABLE 3.5 MARITIME EMPLOYMENT (Billets)

Employment	1991	1992	% Change
Seagoing Employment:			
Licensed	3,484	3,306	
Unlicensed	6,112	5,812	
Total Billets ¹	11,584	9,193	20.64
Shipyard Employment:			
Production Workers	63,970	56,966	
Total Labor	93,646	83,266	11.08
Longshore Employment:			
Atlantic	11,000	10,100	
Gulf	4,700	5,300	
Pacific	8,858	8,626	
Great Lakes	1,071	1,077	
Total Labor	25,629	25,103	2.05

Source: U.S. Department of Transportation, Maritime Industry Key Statistics, Maritime Administration, Spring, 1993.

¹ Includes billets aboard government-owned NDRF ships activated and operated under Ship Manager contracts.

over 10,000 shipyard jobs were lost in the preceding year. This reduction in the labor force can be attributed to a number of factors including: the reduction in the number of "new construction" contracts awarded by the U. S. Navy; non-existent commercial orders, and intense foreign competition. It is important to note that

this 11.08% reduction in the number of shipyard billets lost does not include labor force reductions in peripheral industries. Although related directly to shipyard activity, layoffs in shipyard supplier and "second tier" support industries (such as component manufacturers) are independent of this equation.

And finally, due in part to the volume of activity at major coastal (and inland) ports as well as the bargaining power of the local labor unions, longshore employment at U. S. port facilities fell a relatively modest two percent between 1991 and 1992. In spite of the net decrease in the absolute size of the work force, Gulf Coast ports realized an *increase* in the number of longshore jobs during the calendar year.

F. LEGISLATIVE INITIATIVES

Following the announcement by American President Lines (APL) and Sea-Land that they would reflag their vessels to foreign-flag registry if changes to existing maritime policies and regulations were not adopted, these two shipping companies jointly authored a proposal for maritime reform designed to make all American-flag shipping companies more competitive with their foreign-flag counterparts. On June 10, 1992, a joint APL/Sea-Land proposal was introduced in Congress [Ref. 17:p. 17]. This maritime reform package, entitled the "U. S. Flag Liner Service International Competitiveness Act," targeted three areas for regulatory and legislative improvement.

1. U. S.-Flag Liner Service International Competitiveness Act

The joint APL/Sea-Land legislative proposal focused on three areas of concern to U. S. shipping companies: international maritime standards for design, equipment, maintenance, and operation of U. S.-flag liner vessels; tax competitiveness; as well as defense logistical readiness. It was believed that modifications to existing statutes and administrative regulations would promote and generate growth in the U. S. maritime industry.

a. International Maritime Standards

In order for American-owned shipping companies to fly the U. S. flag, they must satisfy stringent--and expensive--safety requirements.³⁵ On the other hand, foreign-flag shipping companies, free from the regulatory grip of the Coast Guard, ply the seas unfettered by costly U. S. standards. In fact, foreign ship operators are exempt from American safety requirements even when operating in U. S. waters. Quite simply, maritime classification societies such as the International Maritime Organization (IMO) hold their constituencies to much less demanding standards than are required under U. S. law.

Not surprisingly, this two tier approach to maritime safety has evolved into an economic issue with American-flag shipowners and operators. Because higher regulatory requirements translate into increased capital outlays, American shipowners operate at a distinct cost disadvantage *vis a vis* other

³⁵ Safety requirements for all American-flag ships are administered by the U. S. Coast Guard.

maritime nations. It should come as no surprise that many U. S. shipowners have chosen to transfer their vessels to foreign-flag registry in such a competitive environment. Under this joint proposal, safety requirements would be administered by maritime classification societies rather than by the U. S. Coast Guard. This administrative shift would not only relieve American shipowners and operators from the financial burden associated with exceptionally high construction and operating standards, but would encourage those who transferred their commercial fleets to "flags of convenience" to reflag their vessels to U. S. registry. [Ref. 17:p. 18]³⁶

b. Tax Competitiveness

Secondly, the tax regime under which the maritime industry operates has been the focus of intense scrutiny and debate. Another facet of the APL/Sea-Land proposal involved modifying the long-term depreciation schedules of U. S.-flag vessels and the assessed penalties for repair work completed in foreign shipyards. For tax purposes, U. S.-flag vessels are depreciated on the basis of an expected life of ten years. APL and Sea-Land proposed that the depreciation period for all vessels engaged in liner trades be reduced to three years. [Ref. 17:p. 18]

³⁶ Not only would this proposal abolish the higher construction and stability standards on American-flag vessels, but also would eliminate the requirement for newly reflagged ships to wait three years before they are eligible to carry government-impelled cargoes.

Among the other APL/Sea-Land recommendations geared towards improving the tax competitiveness of American-flag shipowners and operators was a proposal to eliminate the *ad valorem* duty for all repair work performed in foreign shipyards. Currently, the U. S. government assesses a 50% duty (fine) on all repairs to American-flag upon their return to the United States. By eliminating this duty, American shipowners and operators would be able not only to compete on a more level playing field against foreign-flag shipping companies, but also to reinvest funds formerly earmarked for *ad valorem* payment into capital improvements. [Ref. 17:p. 18]

c. Defense Logistical Readiness

Finally, APL and Sea-Land proposed establishing a program under which the Department of Defense would be required to depend on American-flag carriers "whenever they are reasonably available to carry DoD cargoes" [Ref. 17:p. 19]. Not only would this Act create peacetime and contingency contracting procedures, but it would ensure that commercial operators are compensated fairly for actual carriage of DoD cargo as well as for their commitment to make their ships available in the event of a national emergency. Further, the Act would require that the DoD engage in "joint contingency planning" with representatives from the U. S. maritime industry [Ref. 17:p. 19].

2. Maritime Reform Act of 1992

As a result of the APL/Sea-Land proposal, the President formed a maritime policy coordinating group in 1992. Chaired by the Secretary of Transportation, the maritime policy coordinating group developed a statement of principles which was presented to both the Senate Subcommittee on Merchant Marine and the Committee on Merchant Marine and Fisheries in the House on June 17 and July 8, 1992 respectively. Some of these principles were incorporated into (and served as the basis for) a proposed Maritime Reform Act of 1992. [Ref. 17:pp. 20-23]

Transmitted by the Secretary of Transportation to Congress on July 17, 1992, this Act--introduced as resolutions H.R. 5627 and S.R. 3047--contained provisions involving the use of Capital Construction Funds (CCF), carriage of preference cargoes, and the elimination of the *ad valorem* tax on U. S.-flag ships for repairs completed in foreign shipyards. In addition to these provisions, this proposed Act would establish a Contingency Retainer Program for seventy-four American-flag ships through FY-2000.³⁷ Although this retainer program was designed to assure the availability of U. S.-flag merchant ships to meet national security requirements, it would serve to bolster American presence in the international commercial shipping market. It was proposed that ship operators

³⁷ This Program would apply mainly to vessels under fifteen years of age. U. S.-flag ships over this age limit could participate if they were transferred from an ODS agreement to the proposed Contingency Retainer Program.

would receive 2.5 million in funding per ship per year commencing in FY-94. By FY-2000, this retainer payment would be phased down to 1.6 million per vessel. [Ref. 17:pp. 22-24]

3. Maritime Security Fleet Program of 1993

The proposed Maritime Reform Act of 1992 received mixed responses from the maritime industry. On the one hand, shipyards objected to the lack of fiscal protection from subsidized foreign shipyard competition. On the other hand, some American shipping companies objected because the proposed Act did not include some type of CDS funding for new ship construction. And still others opposed the Act because the Contingency Retainer Program covered only a seven-year period instead of the preferred duration of ten years [Ref. 17:p. 24].

The 1992 session of Congress adjourned without substantive action on the proposed Maritime Reform Act of 1992. Chief among the legislative obstacles was the inability to fund the Maritime Reform Act. Not only did the Congressional Budget Office (CBO) mandate that the entire seven-year program be funded in the FY-1993 budget, but there existed a shortfall of \$300 million to be covered in the budget process.³⁸ An effort was made to transfer this \$300 million from DoD coffers to the DoT. The DoD objected strongly to the use of DoD-appropriated funds for the Contingency Retainer Program. The Department of Defense argued successfully that the Contingency Retainer Program should be

³⁸ The cost of the Contingency Retainer Program was estimated to be \$1.1 billion.

based "solely on economic findings, not on defense findings" [Ref. 17:p. 25]. In essence, the DoD took the position that a merchant ship retainer program was not needed to satisfy current (or projected) sealift requirements.

In the wake of this legislative inaction, U. S.-flag liner companies operating dry cargo ships in foreign trade proposed in February, 1993, a "Maritime Security Fleet Program" to revitalize the ailing industry.³⁹ At the heart of the proposal was the establishment of a 15-year payment (subsidy) program to American shipowners engaged in liner service. Shipowners participating in this Program would be paid \$2.5 million per ship per year for up to 110 U. S.-flag liner and RO/RO vessels.⁴⁰ Originally intended to begin on October, 1, 1993, this program would be renewable in fifteen-year increments. In return for these payments, American shipowners would guarantee liner service or charters at fair and reasonable rates to the DoD.

If adopted, this "Maritime Security Fleet Program" would eliminate "discriminatory" statutes including the 50% *ad valorem* duty for repairs performed in foreign shipyards, as well as the three-year waiting period for government preference cargoes after a foreign-built (or registered) vessel was put under the U. S. flag. Additionally, those federal regulations which establish vessel design, safety, and construction standards would be modified to conform with lower--and

³⁹ These American shipping companies included APL, Central Gulf and Waterman Steamship, Crowley Maritime, Farrell Lines, Lykes Brothers, and Sea-Land.

⁴⁰ Annual payments would be indexed for inflation.

less expensive—international requirements [Ref. 17:pp. 27-29]. Although this program was presented to the Secretary of Transportation on March 2, 1993, no action has been taken on this jointly-sponsored package.

IV. SEALIFT AND NATIONAL DEFENSE

On October 5, 1989, President George Bush signed a National Security Directive which reaffirmed the relationship between the commercial sealift capability and national defense. The National Security Sealift Policy is based on the principle that:

Sealift is essential both to executing this country's forward defense strategy and to maintaining a wartime economy. The United States' national sealift objective is to ensure that sufficient military and civil maritime resources will be available to meet defense deployment, and essential economic requirements in support of our national security strategy. The broad purpose of the sealift policy is to ensure that the U. S. maintains the capability to meet sealift requirements in the event of crisis or war.

America is still a maritime nation. On the economic front, the United States remains the world's largest exporter with sales totaling \$591 billion dollars in 1991 [Ref. 18: p. 9]. According to the current (1993) National Security Strategy, America's long-term economic strategy must include an "improved infrastructure, particularly in transportation" [Ref. 18:p. 10]. Certainly, the maritime component of America's transportation infrastructure has played (and will play) a fundamental role in America's foreign commerce and economic prosperity.⁴¹

⁴¹ For the purposes of this study, the author has adopted a definition of foreign "commerce" (or "trade") from M. Rosenblatt and Son, Inc., The National Defense Relevance of the World's Dry Cargo Contract Fleet, U. S. Department of Commerce National Technical Information Service, Washington, D.C., June, 1982, p. 2-1: "Commerce is defined as the transportation of seaborne cargo anywhere in the world, and any ship which is engaged in such

Over the past ten years, however, the maritime industry has been adrift in a sea of legislative inaction, regulatory indecision, and industry-wide factionalism. Fraught with partisan and parochial bickering, relations among shipowners, maritime labor unions, operators, management companies, and shipbuilders have been motivated by greed. Now, faced with the fiscal reality of shrinking government outlays and contracts (coupled with foreign competition), the maritime industry is driven by the most basic of needs: self-preservation. Clearly, this "me first" attitude has hindered past efforts by government and industry leaders to present a unified maritime front and has contributed, at least in part, to the downfall of the maritime industry. Indeed, the U. S. Merchant Marine and the shipbuilding industry continue to operate at a fiscal and legislative disadvantage in the global shipping market. Foreign-flag operators are capable not only of carrying all of America's foreign (and domestic) trade, but also of constructing and repairing any U. S.-owned or operated vessel at considerably less expense.

The economic consequences of overreliance on foreign-flag operators are staggering. Because the United States is heavily dependent on imported raw materials, the flow of imports can be disrupted by boycotts, embargoes, and wars [Ref. 19:p. 4-3]. On the one hand, cargo freight rates could be manipulated (or held hostage) by foreign-flag operators. On the other hand, foreign operators

seaborne trade is said to serve that commerce."

simply could refuse to transship goods to and from the United States. In either case, America's economic well-being would be in jeopardy--vulnerable to the whims or the legitimate priorities of foreign shipping companies and their governments.

This transportation phenomena is neither new nor unique: at the commencement of World War I, foreign-flag vessels--normally available to ship America's foreign commerce during peacetime--discontinued commercial service and returned home to serve their countries' wartime needs. As nations withdrew their commercial fleets from essential trade routes, and with virtually no U. S. Merchant Marine to fill the demand for seaborne transportation, America was incapable of providing for its economic well-being or satisfying its military requirements. As a result, freight rates for domestic goods destined for Europe and elsewhere skyrocketed [Ref. 3:p. 14].

Even if these scenarios could be dismissed as irrelevant, the ability to ship America's foreign-bound commerce is only one reason to maintain a U. S. Merchant Marine and shipbuilding infrastructure. As demonstrated throughout history, the U. S. Merchant Marine has been called on to deliver troops and supplies in times of crisis. Among the conclusions discussed in the National Transportation Policy (NTP) was one that stressed the importance of the civilian transportation system to "support military sealift" [Ref. 10:p. vii]. Although America's "fourth arm of defense" has atrophied on the commercial side, a potent sealift capability remains.

A. SEALIFT - AN ENDURING MISSION

Although the National Military Strategy of the United States (1992) classifies transportation as a "supporting capability," it stresses the importance of prepositioning in achieving strategic mobility [Ref. 20:p. 24]. Only through adequate sealift can the United States maintain the military capability to respond quickly and decisively to regional crises, while simultaneously executing a global strategy based on credible forward presence. The importance of transportation in general, and strategic sealift in particular, is articulated again in the Navy and Marine Corps White Paper "... *From the Sea*:"

... *Sealift is an enduring mission for the Navy.* Our nation must remain capable of delivering heavy equipment and resupplying major ground and air combat power forward in crisis. Sealift is the key to force sustainment for joint operations and we are committed to a strong national sealift capability.

These recent proclamations from the civilian and military leadership are not inconsistent with the policy objectives which have guided the U. S. Merchant Marine since the enactment of the Merchant Marine (Jones) Act of 1920:

... it is necessary for the national defense and the proper growth of its foreign and domestic commerce that the United States shall have a merchant marine of the best equipped and most suitable types of vessels to ... serve as a naval or military auxiliary

Merchant vessels perform a variety of roles during times of war or national crisis. Based on exhaustive interviews with key "players" who would place demands on the privately-owned merchant fleet, there are six major roles for merchant ships. These six roles for the merchant marine include: strategic sealift; mobile logistic support force (MLSF) augmentation; amphibious operations

support; logistics over-the-shore (LOTS); other military applications (i.e. providing an emergency UNREP capability or a ready deck for helo operations); and support of the national economy. [Ref. 19:p. 3-1]⁴²

Of these six roles, strategic sealift provides "immediate sealift capability in support of ... contingency or general war plans." [Ref. 19:p. 3-1] Additionally, strategic sealift can be categorized according to task. Primary tasks include:

- Deployment and Resupply--Notwithstanding a "new world order," commercial merchant ships continue to support American forward presence (and power projection) around the world;
- Deployment Shortfalls--Merchant vessels may be called to cover cargo requirements that are not satisfied by current contingency plans;
- Critical "Point-to-Point" Movements--Ships can move military cargo that is needed urgently in a forward operating area;
- Floating Storage--Commercial vessels can be used to offset the shortage of POL tankers in the theater of operations;
- Petroleum, Oil, and Lubricants (POL) Relocation--The merchant marine can move contingency stocks of POL into the affected theater of operations; and
- Surge Force--Programs such as MPS, APS, and FSS provide a quick reaction sealift capability that can transport military equipment to any theater. [Ref. 19:p. 3-1 and 3-2]

⁴² In fact, there is a hierarchy of missions for the U. S. Merchant Marine in times of war or national emergency. At the pinnacle of this hierarchy is service as a Military Auxiliary. Missions such as Defense Resupply, Security, and Commerce (in descending order of importance) are performed as well. For a thorough analysis of roles and missions, see M. Rosenblatt and Son, Inc., The National Defense Relevance of the World's Dry Cargo Contract Fleet, U. S. Department of Commerce National Technical Information Service, Washington, D.C., June, 1982, pp. 3-1 through 3-4.

B. MILITARY SEALIFT ASSETS

Historically, ships have carried approximately ninety-five percent of all military cargo (and nearly ninety-nine percent of fuel) to the theater of operations. One should consider, though, that in a major (or lesser) regional contingency, the same U. S.-flag merchant marine that would support military operations would likewise be unable to carry either the raw materials or finished goods needed to maintain the economy. Clearly, opportunity costs to the nation vary directly in relation to the scope and duration of the conflict: protracted contingencies demand dedicated shipping assets for relatively long periods of time; conversely, lesser regional contingencies (LRCs) of shorter duration demand fewer shipping assets.

Having considered the zero-sum association between military and economic opportunity costs, the question becomes: which types of ships are "best equipped" and "most suitable" to contribute to the war effort? But before discussing military sealift programs and assets, it is important to remember that not every American-flag merchant ship is suitable for use as a naval auxiliary. On the contrary, there is a difference between the types of vessels which are commercially viable (economically efficient) and those that have military utility.

Although there are exceptions, militarily useful vessels tend to be smaller (colloquially labeled "handy-size"), faster, self-sustaining, and flexible. These types of vessels are able not only to enter shallow channels and harbors, but also possess the capability to accommodate a variety of cargo in their holds and tanks.

Also, these vessels would be capable of loading and discharging their cargo without having to rely on specialized gantry cranes or other port equipment for assistance. In general, LASH and SeeBee ships, breakbulk and RO/RO vessels, and multi-purpose tankers have demonstrated greater utility as military auxiliaries than either specialized container ships or product tankers [Ref. 19:pp. 1-1, 1-2].⁴³

Although the U. S. Transportation Command (TRANSCOM) has overall responsibility for providing adequate sealift (and airlift) to the unified (theater) Commanders, the Military Sealift Command (MSC) is tasked with the day-to-day management of naval sealift and logistic assets [Ref. 21:pp. 42-43].⁴⁴ In order to meet the sealift requirements during wartime, the MSC relies on a variety of government- and privately-owned sources. In peacetime, a nucleus fleet of MSC-owned vessels plies the oceans in support of forward presence operations. When the determination is made that additional sealift capacity is needed--beyond that

⁴³ In addition to structural and operational characteristics, Operations *Desert Shield* and *Storm* highlighted the importance of the type (i.e., steam or diesel) of propulsion system in determining the defense utility of a vessel. Other considerations include a vessel's lifting capability and breadth (beam). For a description of National Defense Features (NDFs), see: M. Rosenblatt and Son, Inc., The National Defense Relevance of the World's Dry Cargo Contract Fleet, U. S. Department of Commerce National Technical Information Service, Washington, D.C., June, 1982, pp. 5-6 through 5-10.

⁴⁴ Under the aegis of the Defense Transportation System (DTS), the MSC and the Military Traffic Management Command (MTMC) work jointly to fulfill the sealift requirements during routine operations and periodic exercises.

which is owned or controlled by the MSC--vessels are chartered, activated, or requisitioned (as appropriate) in sequential order by the MSC (and with the assistance of the MARAD) to satisfy the increased demand.

Next in this progression are the Fast Sealift Ships (FSS), as well as the Maritime Prepositioning and Afloat Prepositioning Ships (MPS and APS respectively). Once these assets are committed to the sealift effort, the MSC will then turn to commercial charters (leasing) to fill the sealift void. First, the MSC will turn to U. S.-flag shipping companies to carry military cargo; if American-flag carriers are unwilling or unable to cover the cargo commitments, then the MSC will contract foreign-flag companies to ship the equipment. Once the pool of commercial ship charters is exhausted, or if additional sealift resources are needed to meet immediate requirements, then the Ready Reserve Force (RRF) will be activated.⁴⁵ Having activated this category of vessels, the MSC may take operational control of American-flag ships participating in the Sealift Readiness Program (SRP). Finally, given the demand for increased lift capability (beyond the capability already provided), the MSC could requisition any American-flag vessel, request assets from NATO countries, or activate non-RRF ships for military duty.⁴⁶ [Ref. 21:p. 49]

⁴⁵ Because of their age, slow speed, relatively long loading/unloading times, poor material condition, and a presumed lack of time for activation, non-RRF vessels in the NDRF are among the last to be activated.

⁴⁶ The normal sequence of resource utilization is prescribed in MARAD OPLAN 001A, Basic War Plan, Section 501, September, 1991.

1. MSC-Controlled Fleet

In FY-1972, the Navy reluctantly initiated a plan to turn over a number of underway replenishment vessels to the MSC. From the U. S. Navy's point of view, transferring UNREP responsibility from active naval replenishment forces to an MSC-controlled fleet was a trade off between fiscal savings and combat readiness [Ref. 3:p. 41]. From its inception, this government-operated and owned fleet has been manned by civilian mariners and augmented by naval communications (signal) detachments. Today, the MSC controls a variety of sealift-oriented vessels. This fleet of MSC ships is comprised of combat stores vessels (T-AF/AFS), gasoline tankers (T-AOG), fleet oilers (T-AO), and multi-purpose cargo ships (T-AK/AKR).

2. Maritime Prepositioning Ships

Over a decade has passed since the Maritime Prepositioning Ship (MPS) program was established. Although the idea of marrying up troops to prepositioned equipment is neither new nor revolutionary, the fact that such a substantial enabling force is carried aboard government-operated merchant vessels is indicative of the Navy's commitment to a national defense strategy based on the foundations of *Forward Presence* and *Crisis Response* [Ref. 20: p. 6]. Over the last fifteen years, the Maritime Prepositioning Force (MPF) concept has evolved from an initial response capability to a fully-integrated, and rapidly deployable sealift asset. The forerunner of the MPS program--the Near Term Prepositioning Force (NTPS)--was established in 1980 in response to a Department of Defense

strategic mobility enhancement initiative [Ref. 22:p. E-15]. The NTPF not only provided a stop-gap sealift capability, but filled the prepositioning void in Southwest Asia (SWA) and the Far East.

But something other than an interim capability was needed to improve response times for SWA contingencies. By early 1985, the first combination break-bulk and RO/RO vessels specifically built or converted for the U. S. Navy were loaded with vehicles, equipment, and supplies. By 1987, thirteen ships were obtained by the Navy and organized into three independent squadrons. Crewed with civilian mariners, each MPS squadron carries enough equipment and supplies to sustain one Marine Expeditionary Brigade (MEB) for *at least* thirty days.⁴⁷

3. Afloat Prepositioning Ships

Maritime prepositioning of supplies was also embraced by the U. S. Army during the early 1980s. And like the Navy, the Army wanted to improve its initial response times for SWA contingencies [Ref. 22:p. E-14]. The Army's solution: to strategically preposition ships in the Indian Ocean. Not only does the Afloat Prepositioning Force (APF) carry war reserve cargo (and fuel) for the Army, Navy, and Air Force, but each ship can be employed as a "floating warehouse" in the event of regional conflict. Currently, the APF consists of

⁴⁷ Each MPS squadron is associated with a specific MEB to assure effective planning, training, and execution. MPS Squadron 1 (MPS-1) deploys from the Atlantic Ocean; MPS-2 is anchored at Diego Garcia; and MPS-3 is home ported at Guam/Saipan.

twelve Afloat Prepositioning Ships (APS): eight dry cargo vessels and four tankers.

4. Fast Sealift Ships

Originally constructed as fast merchant ships capable of attaining speeds of thirty-three knots, eight SL-7 Class ships were acquired from the Sealand Corporation in 1981. Due to their high speed and correspondingly high fuel consumption rates, these ships proved to be uneconomical for commercial use. On the other hand, their size (cargo carrying capacity), speed, and flexibility were ideal for employment as naval auxiliaries. Designated by the MSC as Fast Sealift Ships (FSS), they are docked at ports along the Atlantic and Gulf coasts and remain on a 96-hour tether for activation [Ref. 23]. With an additional twenty-four hours, these vessels can be loaded with the all equipment for an entire Mechanized Infantry Division [Ref. 22:p. E-13].

5. National Defense Reserve Fleet

The Merchant Ship Sales Act of 1946 created a government-owned and administered National Defense Reserve Fleet (NDRF) of inactive--but potentially useful--merchant ships. The mission of this Reserve Fleet was to provide a "surge" capability to meet the shipping demands during wartime. In 1976, this Reserve Fleet was divided into two components: a Ready Reserve Force (RRF) that consisted of vessels maintained in varying degrees of readiness; and a non-

TABLE 4.1 NATIONAL DEFENSE RESERVE FLEET, 1945 - 1992

Fiscal Year	Ships	Fiscal Year	Ships
1945	5	1969	1,017
1946	1,421	1970	1,027
1947	1,204	1971	860
1948	1,675	1972	673
1949	1,934	1973	541
1950	2,277	1974	487
1951	1,767	1975	419
1952	1,853	1976	348
1953	1,932	1977	333
1954	2,067	1978	306
1955	2,068	1979	317
1956	2,061	1980	303
1957	1,889	1981	317
1958	2,074	1982	303
1959	2,060	1983	304
1960	2,000	1984	386
1961	1,923	1985	300
1962	1,862	1986	299
1963	1,819	1987	326
1964	1,739	1988	320
1965	1,594	1989	312
1966	1,327	1990	329
1967	1,152	1991	316
1968	1,062	1992	306 ¹

Source: U.S. Department of Transportation, MARAD '92, The Annual Report of the Maritime Administration, May, 1993.

¹ Includes 76 vessels not owned by the Maritime Administration, but in the custody of the MARAD.

RRF component [Ref. 24:p. 8]. Table 4.1 provides the inventory of the NDRF from 1945 to 1992.

a. The Ready Reserve Force

The vessels of the RRF are the first line of ships in reserve. Laid up at Reserve Fleet sites on the Atlantic, Gulf and Pacific coasts, RRF ships are maintained so that they can be activated in 5, 10, or 20 days at predesignated shipyards or port facilities in the event of war. Table 4.2 provides a breakdown of the RRF according to ship type. Although the majority are breakbulk (dry cargo) type vessels, MARAD does control a number of RO/RO vessels and tankers in the RRF.⁴⁸

b. Non-RRF Ships

Of the 306 ships which comprise the NDRF, 210 are categorized as non-RRF ships.⁴⁹ These vessels are maintained in poor material condition and, according to MARAD, would need from 30 to 120 days to activate [Ref. 24:p. 9]. Often referred to as the "Ghost Fleet," the non-RRF ships receive very little exterior preservation and maintenance. With the exception of two Victory ships

⁴⁸ Of the 96 vessels of the RRF, 20 are located in James River, Virginia, 12 in Beaumont, Texas, and 15 Suisun Bay, California. The remaining ships are assigned to other locations in CONUS and Japan. (Some of the higher priority vessels are maintained in a reduced operating status which permits activation within four days. This status is referred to as ROS-4).

⁴⁹ The 210 non-RRF ships include 71 "Victory" Class dry cargo ships from World War II. Additionally, there are 76 vessels not owned by the MARAD but in MARAD custody.

TABLE 4.2 BREAKDOWN OF THE READY RESERVE FORCE (RRF) ACCORDING TO SHIP TYPE	
Ship Type	Quantity
Breakbulk	51
Auxiliary crane	8
RO/RO	17
Barge Carrier	4
Heavy Lift	3
Tankers	11
Troopships	2
Total¹	96
Source: U.S. Government Accounting Office [Ref. 24: p.9].	
¹ This does not include the recent purchase of twelve RO/ROs by the MARAD for conversion and acceptance into the RRF.	

test-activated in 1985, none of the non-RRF ships has been activated since the Vietnam War. Despite their age and material condition, these vessels retain some utility as military or naval auxiliaries since most are self-sustaining breakbulk-type ships.

C. OTHER SEALIFT ASSETS

In addition to the aforementioned programs, current sealift contingency plans rely on statutory and presidential authority to regulate and direct the use

of marine vessels in the event of war or national emergency [Ref. 25:p. 19].⁵⁰ Legislative and executive powers notwithstanding, the Department of Defense depends on privately-owned, U. S.-flag shipping companies to contribute and perform *voluntarily* in a crisis.

1. Foreign Charters⁵¹

Under the Armed Services Procurement Act, the Department of the Navy (DoN) has the statutory authority to contract vessels for lease or acquisition of services. These government contracts may be negotiated directly with U. S. or foreign shipping companies or "advertised" [Ref. 25:p. 20]. Although formal advertising is established as DoD policy for all ship lease and purchase contracts, direct negotiations are authorized in three circumstances where: it is determined that such negotiation is necessary in the public interest during a national emergency "declared by Congress or the President;" the nature of the crisis does not allow enough time for advertising; and the nature of the property [ship] makes it impractical to let the contract through advertised competitive bidding. [Ref. 25:p. 20] ⁵² Many of the assets available to the MSC for inter-theater and

⁵⁰ Direct intervention by the government to secure additional U. S.-flag vessels would occur only to the extent necessary to compensate for inadequate sealift assets during times of war or national crisis.

⁵¹ Technically, the MSC-controlled fleet is composed of MSC-owned vessels and those commercial ships under long- or short-term charters.

⁵² Time, voyage, and bareboat represent the general types of maritime charters.

intra-theater deployment (including the FSS and the MPS squadrons) are leased from American and foreign-flag shipping companies.

2. Sealift Readiness Program

Although the movement of military cargo accounts for only a small percentage of total industry revenue, the privately-owned U. S. Merchant Marine has carried the majority of DoD cargo since World War II. In spite of this support, a continuing problem for the DoD is how to augment MSC-controlled shipping with additional American-flag vessels should the need arise (in a nonmobilization scenario).⁵³ To ensure sufficient cargo space in U. S. bottoms, the DoD instituted the Sealift Readiness Program (SRP). In fact, by the early 1970s, participation by American shipping companies in the MSC-sponsored SRP was required for competitive bidding on DoD cargo. [Ref. 3:p. 47]

Although an involuntary call-up of SRP-committed ships has not occurred, the concept of a Sealift Readiness Program remains viable. The Sealift Readiness Program--a contractual program--requires that U. S. shipping companies that bid on MSC contracts obligate fifty percent of their cargo capacity to the program.⁵⁴ Half of that cargo capacity must be made available within thirty days of notification; the remainder of the space must be available to the

⁵³ Because the DoD is constrained from requisitioning privately-owned ships except in the case of a mobilization declared by the President, any arrangement for employing U. S.-flag merchant vessels must be entered into voluntarily by the shipping company.

⁵⁴ Strictly speaking, a shipping company must agree to contract *fifty percent of its American-flag fleet* to the SRP.

MSC within sixty days. Further, those ships built with CDS funds (or receiving ODS funds) are committed to the SRP [Ref. 22:p. E-13].

3. Effective U. S. Control

Clearly, it is much more profitable for American shipowners to operate their vessels under "flags of convenience" than to register them under the Stars and Stripes. Although the majority of American owners of foreign-flag vessels consider their fleets to be part of the American Merchant Marine, there is little doubt that those who choose to operate their vessels under foreign-flag registry do so because of the potential for higher returns on the (capital) investments. [Ref. 4:pp. 218-221]

Pursuant to Section 902(a) of the Merchant Marine Act of 1936, as amended in 1939, all vessels owned by American citizens (and corporations)--including the ships of foreign registry--are subject to requisitioning by the government in certain instances [Ref. 19:p. 2-18]. These American-owned, but foreign registered ships are considered to be under effective U. S. control (EUSC). Specifically, an American-owned vessel can be requisitioned for duty as a naval auxiliary whenever the President proclaims that it is advisable to do so in the interests of national security, *and* during any national emergency declared by the President [Ref. 25: p. 21].⁵⁵

⁵⁵ A EUSC ship must meet at least one of the following conditions: the ship must have over 50-percent ownership by U. S. citizens (or corporations); the vessel must be covered by War Risk Insurance by the MARAD; or the ship is subject to control of the MARAD as a precondition of transfer to foreign registry.

V. SEALIFT AND THE U. S. MERCHANT MARINE: AN ANALYSIS OF PERSONNEL AND VESSEL AVAILABILITY DURING THE PERSIAN GULF WAR

A. GAUGING THE EFFECTIVENESS OF SEALIFT

By what quantitative standard should planners and commanders judge the viability of strategic sealift in general, and the performance of the Merchant Marine (as well as foreign-flag shipping companies) in particular? Simply, what measure of effectiveness (MOE) should apply? For any major regional contingency requiring sealift, and Operations *Desert Shield* and *Storm* are no exception, the capability to deploy rapidly the maximum tonnage (and volume) of military cargo to an area of responsibility (AOR) in response to (and in support of) support of combat operations ashore is the bedrock upon which an appropriate MOE is developed.⁵⁶

Certainly, the *ability* to lift military cargo is impacted both directly and indirectly by a myriad of variables, not the least of which are the number and *type* of commercial and government vessels available for immediate (and near-term) deployment from ports in the continental United States (CONUS), overseas ports, and prepositioning anchorages. Indeed, the composition of the U. S.-flag

⁵⁶ Corroborated by CAPT Jeffrey Flood, USN, Military Sealift Command (N3), in an interview on 01 September 1993.

merchant fleet weighs heavily on this capability: the fact that the American-flag fleet shifted from breakbulk-type vessels to highly efficient container vessels has diminished its ability to accommodate the "footprint" of specific types of rolling stock. This, however, represents only one-half of the sealift equation. In addition to comparing the tonnage and volume of military cargo transshipped to the war zone against preplanned requirements and timelines and measuring sealift readiness by matching activation schedules to actual vessel performance, one must consider the quantity--and *quality*--of mariners which are required and available to crew those specialized ships.

Some would question whether shipbuilding (or lack thereof) should be included in the sealift assessment. To the extent that domestic shipbuilding has cross-cutting implications for maritime employment (at sea and ashore) and impacts directly on the number of seagoing vessels that are available for contingency operations (CONOPS) in the unlikely event of a protracted (global) conflict, shipbuilding and repair are integral to the economic and national security posture of the United States. Indeed, for every job in an American shipyard, another three are created [Ref. 13:p. 3]. The fact that "there will be only one or two American yards left that can build big ships" by 1998 is sufficient cause for concern by economic and defense planners alike [Ref. 13:p. 3].

However, as we shall see, the epoch of the "come as you are" (i.e., M=C=D) war such as Operation *Desert Shield/Desert Storm* has obviated the requirement for, and nullified the utility of, shipbuilding *per se*. It is precisely because there

may be little (if any) tactical or strategic warning, coupled with predictions for MRCs of limited scope and duration, that the concept of wartime-generated shipbuilding to meet DoD mobility requirements has been reduced to an anachronism in the post-Cold War security environment. As such, conflict-induced ship construction is of limited utility in assessing sealift performance.

B. WARTIME COMPARISONS

The history and present state of the U. S. Merchant Marine has been discussed in detail. This historical perspective was not merely a scholarly exercise. War games and simulations notwithstanding, the only "datapoints" from which to measure sealift successes and assess vulnerabilities are previous mobilizations. Ideally, sealift policy--and requirements--should be driven not only by a pragmatic assessment of the threat, but by a healthy respect for lessons learned from past conflicts. Unfortunately, this was not always the case. Confronted with the unprecedented military buildup by Germany and Japan in the 1930s, civilian (and uniformed) leaders failed to learn from, or capitalize upon, the sealift lessons and vulnerabilities of World War I.

In retrospect, the parallels are strikingly similar. In both instances, the lack of a healthy and robust Merchant Marine *prior to* the outbreak of hostilities not only impaired the ability of the United States to provide for its defense requirements and economic well-being, but resulted in hastily formed (and relatively inefficient) government-sponsored shipbuilding programs *during* each

conflict to satisfy the massive demand for sealift assets. And in both cases, the U. S. maritime industry was capable of accommodating the emergent vessel and manpower requirements over time.

Although American-flag carriers enjoyed temporary economic windfalls following the cessation of hostilities in 1918 and 1945 respectively, the outbreak of the Korean War in June, 1950, again placed tremendous demands on the U. S. Merchant Marine. However, unlike pre-World War I and II conditions, the United States owned and controlled a sufficient number of merchant vessels to satisfy the emergency demand without having to resort to conflict-induced shipbuilding programs. The foremost lesson that must be relearned is that **there is no substitute for a dependable, American-flag merchant *fleet-in-being*.** Secondly, unlike the chaotic experience of training merchant mariners under full mobilization conditions during World War II, those charged with activating government-owned assets had ample time to match projected manpower requirements to anticipated vessel activation schedules. Because there existed a *fleet-in-being*, there was no requirement to mass produce civilian mariners with minimum skills to man newly-constructed ships. In fact, former merchant seamen were recruited from shoreside positions to make up the difference between peacetime and contingency manning as ships were recalled to active service from the NDRF.

Historically, the U. S. Merchant Marine reflects a cyclical maritime industry with peaks and valleys corresponding to wartime and peacetime needs,

respectively. The period between the Korean and Vietnam Wars was no exception. The Merchant Marine contracted in response to an economic recession and the decline in global shipping. In many ways, the sealift response during the Vietnam War paralleled that of the Korean conflict. By 1965, the Department of Defense again activated the NDRF to augment American-flag merchant ships (as well as MSTC-owned and chartered ships) in the delivery of military cargo to Vietnam. And again, mariners were recruited from the union halls (or recalled from semi-retirement) to fill the billets of an expanded fleet.

It is not beyond the realm of possibility that these latter two conflicts lulled civilian leaders and military planners alike into a false sense of national (sealift) security. Arguably, the logistic achievements during the Korean and Vietnam campaigns may have masked inadvertently sealift vulnerabilities and shortfalls, and contributed partially to a laissez-faire, "if it ain't broke, don't fix it" attitude in Washington. Indeed, the U. S. Merchant Marine may have been its own worst enemy: if a residual fleet of World War II-vintage NDRF vessels, combined with government-owned and U. S.-flag commercial vessels and supplied by a labor pool of active and semi-retired civilian mariners, was sufficient to meet the logistic needs of both conflicts, then it is conceivable that sealift policy was assessed (incorrectly) as appropriate to meet future requirements. Further, it must be remembered that unlike the North Atlantic during World War II, the maritime environment during the Vietnam and Korean Wars was relatively benign. Absent

from Vietnamese waters was any credible anti-shipping/ASUW threat to American bottoms.

However, it is both idealistic and dangerous to assume that a well-maintained fleet of merchant ships and a viable labor pool of mariners will be available under any circumstances for immediate call-up during a national crisis. A critical review of the Vietnam War logistics response reveals deep cracks in the sealift facade. In fact, providing sufficient (qualified) seamen to man the merchant ships was a major problem during the Vietnam build-up [Ref. 26:p. 491]. Not only was the pool of available seamen relatively small, but each ship activated from the NDRF required a relatively large number of billets to be filled. Consequently, the pace of sealift operations was influenced by manpower availability. In any event, shortages of both licensed and unlicensed mariners were directly responsible for a number of ship-delayed (vice cargo-delayed) sailings [Ref. 27:p. I-6].

C. THE SWA SEALIFT RESPONSE

As with past mobilizations, the *sine qua non* of logistics operations during the Persian Gulf War was the ability to move maximum tonnage and density of cargo as rapidly as possible to the SWA theater. It is in this context that sealift successes and vulnerabilities must be viewed. In many critical ways, the movement of military equipment by sea during Operations *Desert Shield* and *Storm*, and the supporting actions assumed by the Department of Defense, the

Maritime Administration, American-flag shipping companies, and the labor unions, correspond closely with actions taken by many of the same institutions during the Vietnam conflict and, to a lesser extent, the Korean War.

Despite glaring--and important--similarities with previous mobilizations, one is warned against making the Persian Gulf War either *the* conceptual or policy model for future sealift operations in the post-Cold War environment, however. Although it is true that certain aspects of the Persian Gulf sealift response dovetail nicely with the Vietnam sealift effort, and are in fact instructive as planning tools for the next conflict, placing too much emphasis on the conduct or characteristics of this conflict does as much to distort and misrepresent the status of the U. S. Merchant Marine as to ignore the geo-political circumstances and dynamics in August, 1990. The best way to avoid this historical "trap" is to appreciate not only the operational similarities of each sealift effort, but the uniqueness of the conflict.

1. Vessel Availability

The marshalling of sealift assets from prepositioning and CONUS sites heralded the largest buildup of U. S. forces since the Vietnam War. President Bush's decision to deploy American forces to the Middle East on August 7, 1990, had a profound and immediate effect on the maritime industry. The President's decision to execute Operation *Desert Shield* initiated the deployment of two MPS squadrons (MPS Squadrons -2 and -3), as well as the ten (available) Afloat Prepositioning Ships from ports and anchorages in the Pacific and Indian Oceans

to SWA [Ref. 28:pp. 82-83].⁵⁷ In addition to these resources, Fast Sealift Squadron One, partially crewed and maintained at CONUS layberths on 96-hour (ROS-4) standby, were directed by the Commander, Military Sealift Command (COMSC) to make ready for sea [Ref. 21: p. 44]. The U. S-flag sealift train had been put into motion.

a. From No-Notice to Steel Bridge

It took only eight days from the time that the no-notice deployment order was received for the first component of the APF (MPSRON-2) to begin offloading heavy combat equipment at the port of Al Jabayl, Saudi Arabia.⁵⁸ In the interim, the Navy had shifted its focus to RRF deployment. On August 10, the MSC requested the priority activation of all seventeen RO/RO vessels in the RRF in order to cover surge- and sustainment-phase lift requirements. Shortly thereafter on August 14, the first of the FSS (the USNS *Capella*) sailed "chock-a-block" with heavy combat equipment belonging to the 24th Infantry Division (Mechanized) from the Port of Savannah. [Ref. 21:pp. 42-44]. Phase I sealift operations had begun.⁵⁹

⁵⁷ One of the APS was in the Mediterranean Sea when the deployment order was issued.

⁵⁸ The lack of an earlier decision to get the MPS underway not only affected logistics timetables, but reduced the options available to the CINC. See: Conduct of the Persian Gulf War: Final Report to Congress, April, 1992, p. E-31.

⁵⁹ The sealift deployment and sustainment effort of Operation *Desert Shield* and *Desert Storm* occurred in two phases. The first sealift phase extended from August to November, and was designed to deploy and sustain defensive forces to deter Iraqi aggression into

In accordance with utilization plans (including MARAD OPLAN 001A), militarily-useful vessels were obtained from a variety of sources.⁶⁰ But like most--if not all--war plans, the structured progression (hierarchy) through which categories of ships (i.e. MSC-Charter, RRF, SRP, EUSC, or Allied) are called into service quickly became convoluted as planning gave way to execution. As might be expected, the needs of the theater CINC overwhelmed MSC-controlled assets. As a case in point, the MSC was compelled to request the RO/ROs in the RRF inventory on the day that it began chartering ships for the same purpose [Ref. 29:p. 19].⁶¹

(1) *Evaluation of Performance.* By any measure, the sealift performance during the first four months (Phase I) of Operation *Desert Shield* was exceptional. In fact, more equipment had been deployed to Saudi Arabia within the first three weeks of the mobilization than "in the first three months of the no-notice deployment to the Korean War" [Ref. 21:p. 42]. Not surprisingly, the post-

Saudi Arabia. The reader should not confuse these two logistics Phases with the three basic sealift phases: *prepositioning* ("prepo"), *surge*, and *sustainment*.

⁶⁰ MPSRON-1 was not employed during Phase I sealift operations.

⁶¹ Because there were so few RO/ROs in the U. S. Merchant Marine, the MSC was forced to turn to foreign-flag charters. (MSC entered into the first foreign-flag charter on 21 August). However, in all cases where U. S.-flag vessels were available for hire, and in accordance with MSC policy, American ships were given preference over foreign-flag carriers. For a comprehensive discussion of MSC-charter preference, see: U. S. Congress, Hearings before the Subcommittee on Merchant Marine of the Committee on Merchant Marine and Fisheries, Persian Gulf Sealift Requirements, USGPO, Washington, D.C., 1991, p. 54.

Desert Shield/Storm literature is replete with quantitative comparisons of past mobilizations.⁶² Among them is the testimony of VADM Paul D. Butcher, USN, Deputy CINC, USTRANSCOM, before the Subcommittee on Merchant Marine. He testified before Congress that "We sealifted 123,000 tons on the first 12 ships in *Desert Shield*, nearly 50 percent more than was sealifted to Korea in the first 30 days ... irrespective of circumstances" [Ref. 30: p. 13].

Despite the immense volume of military cargo moved quickly to SWA, the sealift experience was, at best, a qualified success story. It is precisely because those "circumstances" had such a profound influence on the conduct of the mobilization that VADM Butcher may have been premature with his assessment of the sealift effort. In all fairness, though, Operations *Desert Shield* and *Storm* did validate the concept of afloat and ashore prepositioning (and hence the wisdom of the DoD in spending \$8.3 billion on the MPS, APS, FSS, and RRF during the 1980s). Both in terms of total cargo capacity and their ability to respond promptly to SWA, the performance of the APF and the FSS was outstanding. Not only did each of the three MPS Squadrons meet (and in some cases *exceed*) the expected 10-day timetable for unloading and marrying unit

⁶² By the commencement of Phase II operations, 1.2 million short tons of cargo (and more than 3.5 million short tons of fuel) had been shipped to SWA. Similar to past conflicts, sealift delivered ninety-five percent of the cargo bound for SWA. Even by CNA estimates, the pace of operations was one-third greater than that achieved during the first twelve months of the Korean War. See: Ronald Rost, John Adams and John Nelson, Sealift in Operation Desert Shield/Desert Storm: 7 August 1990 to 17 February 1991, The Center for Naval Analyses, Report No. CRM 91-109, May, 1991, pp. 1-2.

equipment to combat forces, but the APF was responsible for delivering approximately one-half of the total ammunition needed during Phase I [Ref. 29:p. 35].

Other sealift successes also warrant mentioning. On August 23, the MSC entered into an agreement with American-flag carriers to transport foodstuffs and supplies in regularly-scheduled liner vessels bound for Saudi ports. By participating (voluntarily) in the Special Middle East Shipping Agreement (SMESA), American-flag shipping companies were obligated to provide container slots for government (vice commercial) cargo. In total, seventy-nine ships representing five American-flag carriers (not including MSC) were contracted through SMESA [Ref. 31].⁶³ According to data compiled after *Desert Storm* by the MSC and MTMC (and referred to by APL and Sea-Land in company presentations), SMESA accounted for 28.8 percent of the total dry cargo tonnage delivered to SWA.

In addition to SMESA, USTRANSCOM directed MTMC and MSC to implement (and manage) the *Desert Storm* Sealift Express. Similar to air delivery of high-value equipment and supplies, there was a requirement to

⁶³ The following U. S.-flag companies participated in the SMESA: Sea-Land Service, American President Lines, Farrell Lines, Waterman Steamship Company, and Lykes Lines. (By MSC data, seven U. S.-flag liner companies, totaling 114 ships, provided service under SMESA). Although relatively little containerized military cargo was delivered to SWA during Phase I, SMESA was invaluable for transporting sustainment supplies to SWA. According to APL data, these five carriers (including MSC) delivered 77,038 twenty-foot equivalent units (TEUs) during Operations *Desert Shield* and *Storm*.

transport containerized cargo to SWA as swiftly as possible. Sealift Express was established solely to improve upon transit times for priority cargo to SWA.⁶⁴ Rather than shipping containers directly to Saudi Arabia, containers were transshipped to feeder ships in the Mediterranean Sea. These "feeders" would then shuttle the containers to SWA. Although planners envisioned a 23-day transit from the final CONUS port of embarkation to the SWA port of debarkation, actual voyage times averaged between 25 and 27 days--still a significant (virtually one week) reduction from previous non-SMESA crossings. [Ref. 22:pp. F-36-37]

Nonetheless, the sealift effort was plagued by a variety of ship-related factors. Chief among these factors was availability *per se* of U. S.-flag carriers *vis a vis* foreign-flag operators. For mobilizations requiring sealift, it is the policy of the MSC to turn first to the U. S. Merchant Marine for vessels. Readily available ships would be chartered to carry surge and sustainment cargo. If, for whatever reason, U. S.-flag ships are not available, then MSC will charter foreign-flag vessels in order to get the cargo to the theater as quickly as possible. Although there was adequate sustainment phase lift through the use of container ships owned and operated by U. S.-flag liner companies, American-flag *surge* sealift--that capability which involved the **immediate** transportation of military equipment (mainly from CONUS) to the theater Commander--was insufficient to

⁶⁴ Prior to establishing Sealift Express, it took between thirty and thirty-five days to move containers to SWA.

meet DoD requirements.⁶⁵ Faced with the immediate need to place ships--regardless of nationality--on berth, COMSC was compelled to charter foreign-flag breakbulk and RO/RO ships to accommodate unit equipment destined for SWA.⁶⁶ In fact, of the ships chartered by MSC during *Desert Shield*, forty-nine vessels were of foreign registry [Ref. 21:p. 46]. Quantitatively, this category not only represented twenty-eight percent of all ships utilized, but accounted for fifteen percent of the total cargo delivered during Phase I.

This is not to suggest, however, that foreign-flag vessels chartered for *Desert Shield/Storm* were either more reliable than their American-flag competitors, or should be more heavily relied upon in future scenarios. To the contrary, unlike their foreign counterparts, not one U. S.-flag vessel (in either

⁶⁵ *Sustainment* phase shipping provides sustenance, long-term foodstuffs, maintenance materials, and supplies to the troops. It has been reported that U. S.-flag carriers were reluctant to remove their vessels from liner service during *Desert Shield/Desert Storm* for fear of losing commercial market share to foreign-flag operators. Others attribute delays in vessel availability to evolving sealift requirements/priorities and the lack of CENTCOM-sponsored Time Phased Force Deployment Data (TPFDD) to guide deployment operations. For related testimony, see: U. S. Congress, Hearings before the Subcommittee on Merchant Marine of the Committee on Merchant Marine and Fisheries, Persian Gulf Sealift Requirements, USGPO, Washington, D.C., 1991. pp. 23, 28.

⁶⁶ In testimony before the Subcommittee on Merchant Marine on September 26, 1990, VADM Francis R. Donovan, Jr., USN, COMSC, stated that "primary consideration is given to the ship's availability to get on berth and deliver the cargo." Although ship availability was of primary importance, MSC awarded all charters on a competitive basis. Refer to: U. S. Congress, Hearings before the Subcommittee on Merchant Marine of the Committee on Merchant Marine and Fisheries, Persian Gulf Sealift Requirements. USGPO, Washington, D.C., 1991.

Phase) *refused* to enter the Persian (Arabian) Gulf or contiguous waters because of crew or company-related interests. Unfortunately, on at least four occasions--and arguably under the most favorable of politico-military circumstances--foreign-flag vessels chartered to carry cargo into the Persian Gulf declined to enter the combat zone.

In one incident, the master and crew of the M/V *Trident Dusk* (Qatar registry) refused to transit through the Strait of Hormuz. Contracted by MSC, the vessel had unloaded cargo destined for SWA from the Port of Tacoma, Washington, on 10 December. In response to this breach of contract, the MSC placed the ship "off-hire" on 17 January 1991, and transshipped its freight to the M/V *Canadian Forest* at Muscat, Oman.⁶⁷ In another case, a foreign-flag ship operated (chartered) by American President Lines (APL) refused to sail into the Persian Gulf following the commencement of hostilities in January, 1991. Contractual obligations notwithstanding, the crew of the feedership M/V *Eagle World* (Panamanian registry) declined to get the ship underway for its weekly "run" from the transshipment point at Al-Fujayrah, United Arab Emirates, to Ad-Dammam, Saudi Arabia [Ref. 32:p.2].⁶⁸ Further, there were many instances

⁶⁷ The specifics of this case were provided by Mr. Keith A. Bauer, Head, Special Projects Chartering Division, Military Sealift Command, and Ms. Kathy Stangler in interviews on 02 September, 1993.

⁶⁸ CAPT Grant Stewart, Assistant Marine Superintendent, Operations/Engineering, American President Lines, Ltd., provided the details of this case in an interview on 16 October, 1993.

throughout Operations *Desert Shield* and *Storm* in which foreign-flag vessels could meet neither the lay date for loading at CONUS ports, minimum speed requirements, nor the safety and sanitary conditions as set forth in the MSC contract.⁶⁹

Indeed, there was a mismatch between CENTCOM-driven requirements and the sealift assets available to meet those needs during Phase I operations. Not only did deliveries to Saudi Arabia lag behind CENTCOM requirements, but by mid-September (C+40), CENTCOM had received **less than half** of the unit equipment required by the Army's TPFDD [Ref. 30:p. 31].⁷⁰ Although CINCCENT was quoted in a Washington Post article (and by distressed Members of Congress) as saying that the military (coalition) buildup was "running five to six days behind schedule because of sealift problems," CENTCOM force requirements were in fact "twelve days late in leaving and fourteen days late in arriving" as of 18 September [Ref. 30: pp. 6, 26].

Foreign-flag charters notwithstanding, American-flag carriers were not the only ones to be hounded by "on-berth" timetables and CENTCOM requirements. The breakout and timely activation of RRF vessels following the

⁶⁹ In reality, the propensity for a vessel to "strike" or refuse sailing orders has less to do with the flag of registry than the (mixed) nationalities of the crew assigned thereto.

⁷⁰ In retrospect, initial deployments took nearly ninety days to close the forces defending Saudi Arabia [Ref. 30:p. 11].

TABLE 5.1 PHASE I (SURGE) ACTIVATION OF THE RRF				
Assigned Readiness Period				
Activation Record	5 days	10 days	20 days	Total
Early or on time	8	3	1	12
Late, 5 days or less	10	2	0	12
Late, 6 - 20 days	15	1	0	16
Late, more than 20 days	4	0	0	4
TOTAL	37	6	1	44
Source: Joint Department of Defense/Department of Transportation Ready Reserve Force Working Group, <u>The Ready Reserve Force: Enhancing a National Asset</u> , October, 1991, pp. 6-4.				

deployment order pushed MARAD, the General Agents and Ship Managers responsible for activation of particular vessels within the RRF, shipyards, and the maritime labor unions to the limit. Although RRF ships delivered more than one-third of the equipment to SWA during Phase I, most RRF ships were not activated on schedule. Not only did RRF activations take twice as long as expected, but many RRF vessels were required to sail relatively long distances to load their cargoes [Ref. 29:pp. vi, 33]. As illustrated in Table 5.1, only twenty-seven percent of the ships activated achieved their assigned readiness timetable and were tendered to MSC on time or early. Additionally, of the thirty-two RRF

ships tendered late to the U. S. Navy, forty-five percent (20 of 44) missed their preassigned readiness period by *more than five days*.⁷¹

A variety of mechanical difficulties and materiel problems plagued shipyard workers, Port Engineers, and newly-formed crews. In addition to non-machinery related problems such as diversions for bunkering and long transit times to sea trial areas, vessels activated for *Desert Shield* experienced *steam*-related engineering casualties including boiler tube leaks, evaporator failures, and throttle (and other control valve) malfunctions. Numerous other casualties associated with bilge/ballast system wastage, as well as fuel and lube oil contamination, occurred with stunning regularity.⁷²

Although mechanical failures related to primary shipboard systems contributed to vessel delays in *at least* twenty-four (of the thirty-two) cases, difficulties in activating the RRF can be traced directly to reductions in prior year funding for scheduled maintenance and periodic RRF activation exercises [Ref. 22:p. E-11].⁷³ Indeed, of the forty-four RRF vessels activated by MARAD to meet surge requirements, only seventy-five percent (33 of 44) were

⁷¹ Vessels with breakout schedules of five and ten days took, on average, eleven and sixteen days respectively to activate from layup. See: Conduct of the Persian Gulf War: Final Report to Congress, April, 1992, pp. E-10, F-34-35.

⁷² Despite the requirement to keep a complete set of drawings for each RRF vessel, the electrical systems on at least one ship had to be traced by hand since technical schematics were not available.

⁷³ MARAD was unable to "test" activate any RRF vessel in FY 1988, 1989, or 1990 due to funding limitations.

in readiness condition (C-status) C-1 or C-2 at the time of breakout.⁷⁴ The remaining eleven vessels activated (twenty-five percent of the ships) had individual readiness conditions of C-3 *and below* as of 01 August that precluded them from meeting their assigned readiness timetables [Ref. 33:p. 6-3].

Unfortunately, persistent delays in the activation of RRF vessels, coupled with U. S.-flag operators hesitant to surrender market share in commercial (liner) service to foreign operators, not only had a deleterious effect on logistics operations during Phase I, but resulted in the employment of foreign-flag ships to cover the surge requirements. In the words of VADM Donovan, "We went to the marketplace and got capability" [Ref. 30:p. 23]. As discussed, MSC operated under the assumption that if a ship were readily available to move cargo (with preference given to U. S.-flag carriers if available), then that vessel would be chartered. Clearly, repeated delays in activating RRF ships exasperated the vessel availability problem. But by depending on both American- and foreign-flag charters, the Navy "... did not have to wait for the process of an RRF breakout" to ferry priority unit equipment to SWA [Ref. 30: p. 55].

b. Phase II Sealift

The Presidential directive of 07 November that authorized offensive deployments heralded the commencement of Phase II operations. Before

⁷⁴ Readiness conditions are expressed in terms of a ship's "C-status." RRF ships in C-3 status have "major deficiencies not repairable within the assigned readiness period." Vessels in lower readiness categories require even more time (and effort) to make them available as surge or sustainment assets.

evaluating the performance of sealift during this Phase, one must recognize that Phase II conditions were profoundly different from Phase I. First, unlike the "no-notice" activation and deployment of government-owned and operated ships (and commercial charters), mobilization procedures and logistics systems were *operational*. Not only were sealift planners able to position shipping assets for Phase II operations, but transportation-feasible deployment plans were developed (and evaluated) in advance of hostilities. Further, with the majority of government assets (MPS, APS, FSS, and the RRF) already dedicated to the SWA campaign and over fifty commercial vessels under charter to MSC, the domestic maritime infrastructure was able to accommodate and flex to shifting priorities and requirements.

Secondly, Phase II operations required that **more** service support equipment be moved *faster* to SWA. Although fewer combat units were shipped, CENTCOM requirements for combat support and combat service support elements (primarily Army ground units) were greater than in Phase I operations. Lastly, the fact that much of the service and support equipment was shipped from Army coffers in Europe--as opposed to CONUS depots--not only resulted in shorter transit distances and times to SWA, but reduced the shipping capability needed to move that cargo.

(1) *Evaluation of Performance.* Both the pace of sealift operations and the total volume of cargo moved by government assets and commercial (including SMESA) vessels were greater than experienced in Phase I. Although

estimates of the amount of equipment to be shipped *more than tripled* between mid-October and mid-November, sealift deliveries during Phase II were measured as forty percent larger than the volume shipped during Phase I [Ref. 29:pp. 39-40].⁷⁵

In the early stages of Phase II, seaborne deliveries of unit equipment actually *surpassed* CENTCOM requirements. Unfortunately, this logistics phenomena was short-lived; by (and throughout) December, the lag between requirements and sealift deliveries was nearly seven days, and by January, deliveries lagged requirements in particular categories of equipment, supplies, and materials by "up to a month." In fact, the flow of personnel from CONUS (and Europe) led the arrival of unit equipment by one to three weeks. Quite simply, unit integrity was sacrificed in order to maximize the use of scarce (sealift) resources. [Ref. 29:pp. 41, 50]

As in Phase I, the lack of shipping was responsible for the mismatch between deliveries and requirements. But unlike Phase I operations, sealift planners turned to commercial charters rather than government-owned or operated assets to carry the predominant share of the sustainment cargo. Arguably, the ships chartered by MSC were less desirable than those acquired during Phase I. Not only was the proportion of RO/ROs to general cargo (or container) vessels lower, but the cargo carrying capacity of those hired by MSC

⁷⁵ It is estimated that between 29 and 30 million square feet of cargo was delivered during both Phases, of which 17 million (approximately sixty percent) was shipped during Phase II.

TABLE 5.2 PHASE II (SUSTAINMENT) ACTIVATION OF THE RRF				
Assigned Readiness Period				
Activation Record	5 days	10 days	20 days	Total
Early or on time	3	2	1	6
Late, 5 days or less	6	1	0	7
Late, 6-20 days	4	1	0	5
Late, more than 20 days	5	4	0	9
TOTAL	18	8	1	27
Source: Joint Department of Defense/Department of Transportation Ready Reserve Force Working Group, <u>The Ready Reserve Force: Enhancing a National Asset</u> , October, 1991, pp. 6-5.				

fell short of that needed to maintain unit integrity. Also, the proportion of American- to foreign-flag merchant vessels was similarly skewed. Of the 128 commercial vessels chartered by MSC during Phase II, 116 (ninety-one percent) were of foreign registry. [Ref. 29: p. 43]⁷⁶

Although chartered vessels carried the major share of the cargo, government assets continued to play an important role in the sealift effort. In addition to those APF squadrons employed during Phase I, the third squadron of MPS (MPSRON-1), associated with the 6th MEB, was deployed to SWA. These vessels, stationed in the Western Atlantic (CONUS), reached the Arabian Gulf at the time when the first chartered ship from Europe arrived in theater [Ref. 30: p.

⁷⁶ MSC-chartered ships accounted for more than half of the total cargo delivered during Phase II.

44]. Also, another three RRF vessels were activated by MARAD in mid-November following the President's decision on 08 November to authorize offensive deployments. However, it was not until early December that additional RRF vessels were obtained *en masse* to support the Phase II build-up. On 04 December, fourteen breakbulk ships were activated from the RRF to carry ammunition to Saudi Arabia. From late-December through February, 1991, ten additional RRF ships were activated by MARAD and made available to MSC [Ref. 29:pp. 20, 43].

As was the case with the RRF ships activated in response to Phase I (surge) requirements, those activated during Phase II experienced their share of delays. Of the twenty-seven RRF vessels mobilized, only twenty-one (seventy-eight percent) were in readiness condition C-1 or C-2. In fact, the remaining six ships were in readiness status C-5 when the call came to activate.⁷⁷ Table 5.2 shows that only six (twenty-two percent) of the vessels activated by MARAD (through the General Agents and Ship Managers) met their assigned readiness timetable, while two-thirds of the ships tendered late missed their assigned readiness period by *more than five days*. [Ref. 33:pp. 6-4, 6-5]⁷⁸

⁷⁷ Readiness condition C-5 denotes "scheduled major repairs in progress: unable to meet assigned readiness criteria."

⁷⁸ It would be unfair (and inaccurate) to place the burden of responsibility for these delays on any one individual or organization. On the contrary, General Agents (and Ship Managers), shipyard workers, and MARAD representatives labored around-the-clock to meet the deadlines. Although no level of funding can guarantee 100 percent reliability, the absence of dedicated funds for periodic maintenance and test activations impairs the ability

c. Assessment

In no way should the materiel and mechanical problems associated with the RRF detract from the overall success of the sealift effort during *Desert Shield/Storm*. The fact that the USNS *Antares*, one of eight FSS normally maintained in a high state of materiel readiness and capable of deploying within four days (ROS-4), was towed to Spain following an engineering casualty off the East coast of the United States shows that even under the best of conditions, ships--including well-maintained ships--will experience mechanical failures.

Giving due consideration to the geo-political climate and military environment following the invasion of Kuwait, **sufficient sealift was available in this particular case** to move millions of tons of prepositioned, surge, and sustainment equipment, supplies and fuel from bases in the Indian and Pacific Oceans, Europe, and CONUS to SWA. Indeed, this was a global effort, both in terms of *distance* to the theater and the *nations* from which sealift assets were acquired. For the record, though, that support did not come cheaply to the U. S. government. Aside from assuming a degree of risk by relying heavily--in the absence of American-flag assets--on foreign-flag shipping, those contracts awarded by MSC reflected commercial ocean freight rates.

Nonetheless, strategic sealift was available throughout the SWA campaign, and additional American-flag assets (government- and privately-

of those responsible to activate the RRF quickly and efficiently.

owned) could have been obtained if necessary. In fact, it is estimated that only forty percent of American-flag shipping (including charters and SMESA) was employed in transporting cargo to SWA [Ref. 29:p. 13]. Also, only eighty-two percent of the RRF was activated during this MRC. A number of measures--admittedly, some severe--could have been implemented by the DoD via MARAD to increase the supply of shipping (particularly in the early stages of the conflict). Indeed, uniformed leaders in DoD, in consultation with MARAD, made a conscious decision not to include certain programs in the sealift call-up. The DoD, through USTRANSCOM and MSC, worked under self-imposed constraints regarding the utilization of U. S. shipping in order to preserve the *status quo* in the international shipping market.

Certainly, the abundance of foreign-flag charters (especially RO/ROs) was a key factor in the decision not to disrupt U. S.-flag shipping interests. If required, the U. S. government could have called on those ships participating in the Sealift Readiness Program (SRP) or the Voluntary Tanker Agreement (VTA) to provide supplementary cargo capacity. Additionally, the government could have requisitioned ships under Effective U. S. Control (EUSC) to augment the sealift effort. However, none of these measures were implemented. Even those foreign-flag ships chartered by MSC were not part of a greater political decision or formal request by the Bush Administration (or other

coalition nation) to mobilize NATO-controlled shipping assets as prescribed by Section 501 of MARAD OPLAN 001A (Basic War Plan).⁷⁹

2. Personnel Availability

Operations *Desert Shield* and *Storm* created an intensive, albeit temporary, demand on the available pool of maritime labor. Unlike the formal readiness conditions and activation timetables associated with vessels *per se*, there is no clear-cut guidance--from any agency or bureau--for ensuring that a sufficient number of U. S. mariners will be available to crew those ships in event of a national emergency. Although the President has the responsibility and authority to requisition any American-flag merchant vessel to cover shipping commitments during wartime, neither the Congress nor the Commander-in-Chief can force civilians to sail. Whether a QMED, FWT, AB, or Third Officer, those who participate in the business of shipping do so *voluntarily*--and without the benefit of reemployment rights or exchange privileges.⁸⁰

⁷⁹ Not only could MARAD have activated the balance of the older, steam-powered, break-bulk ships in the RRF, but vessels from the non-RRF fleet may have been candidates for "upgrading" to the RRF (and subsequent activation).

⁸⁰ Although there are a few exceptions, licensed and unlicensed mariners are regarded as "volunteers"--even if engaged in transporting military cargo into a war zone. Because of this status, the UCMJ does not apply to merchant marine officers or seamen. That is not to suggest, though, that a mariner who violates a specific code of conduct will escape retribution. On the contrary, the Master of the ship has the authority and the responsibility to discipline or relieve a seaman who is either negligent or deficient in his assigned duties. Further, the transgression will be brought to the attention of the U. S. Coast Guard for federal adjudication. Depending on the nature and

a. Manning the Rails

In some important ways, the sealift buildup during Operations *Desert Shield* and *Storm* reflected the juxtaposition of a best and worst case manning scenario. And like ship availability, the circumstances surrounding (and influencing) the call for mariners warrants examination. As discussed in Chapter III, the pool of qualified, actively sailing U. S. mariners from which to draw on during a conflict continues to fall precipitously. This decline parallels the shrinking job base as the number of U. S.-flag vessels (as well as average crew size) continues to plummet. The fact that the labor pool--approximately 24,000 mariners--was sufficient to crew the MPS, APS, FSS, MSC-owned and remaining U. S.-flag commercial ships in 1990 does not diminish the seriousness (or the immediacy) of the manning problem. On the contrary, the no-notice demand for sealift assets, coupled with the wholesale activation of RRF ships, seriously stressed the maritime unions' ability to provide *qualified* crews to those government-operated vessels. Then-Secretary of Transportation Samuel K. Skinner, remarked that "putting less than half of the emergency fleet (RRF) in service has nearly exhausted the nation's supply of merchant mariners" [Ref. 34: p. 3].

severity of the infraction, the seaman's qualifications can be temporarily suspended or revoked permanently--in effect, stripping the seaman of his ability to make a living in the industry. By any standard, the ability to fire or fine a mariner is a significant (and usually effective) deterrent.

In total, 2,700 licensed and unlicensed mariners were found to crew the seventy-eight RRF vessels. However, the RRF manning problem has its origins in pre-*Desert Shield* planning assumptions and the size of the commercial merchant fleet. Chief among these factors is the relationship between the civilian labor force and the number of ships in the RRF than can be manned through existing bureaucratic (union) mechanisms. As the size of the maritime labor force decreases--paralleling the decrease in the numbers of U. S.-flag vessels--the number of RRF ships that can be crewed by commercial means will decline similarly over time. Additionally, manpower planning (billet to mariner) ratios were based on prior sealift mobilizations (World War II, Korea, and Vietnam). Quite simply, sealift planning assumptions were invalid: no longer can the U. S. Merchant Marine accommodate surge shipping requirements as it did in previous mobilizations; nor can planners depend on relatively long "ramp-up" times to generate an adequate supply of seamen. Taken together, pre-Persian Gulf War manpower estimates predicted that some 9,000 mariners would be readily available to crew the RRF. In reality, however, "extraordinary measures" were implemented just to obtain the 2,700 needed to man *eighty percent* of the RRF! [Ref. 35]

The old adage that "the war won't wait until Monday morning" rang loud and true in the halls of MARAD as the request for all seventeen RO/ROs in the RRF came from the Pentagon on Friday evening, 10 August. Not only was MARAD "faced with a 5:30 deadline on a Friday night" to set in motion

the activation process, but the labor unions were forced to recall seamen over the weekend to crew those RRF vessels [Ref. 30:p. 60]. The post-*Desert Shield* record clearly shows that rapid and efficient manning of the RRF was hampered by a number of situational factors, not the least of which was weekend activations. Unfortunately, the task of mariner notification was made even more difficult by the fact that the emergency call-up occurred during August--a traditional vacation month for U. S. mariners [Ref. 10:p. 54].

(1) *Steamships, Boomships, and Ancient Mariners.* Although the poor materiel condition of the RRF can be attributed to a lack of adequate maintenance and periodic test activations, the delays in activating the RRF were caused in part by the time needed to locate (qualified) seamen to crew the government ships. Although no U. S.-flag ship mobilized during either Phase of the sealift effort failed to sail because U. S. Coast Guard Certificate of Inspection (COI) minimum manning requirements (as opposed to contract manning levels) were not met, there were instances in *both* Phases where the absence of key crew members was responsible for delayed light-offs of vital ship systems--and hence late dock and sea trials. [Ref. 33:pp. 1-8, 6-11]⁸¹

⁸¹ Although the U. S. Coast Guard COI guidelines stipulate the absolute minimum manning requirements (with respect to fire-fighting and lifesaving) that must be met on American-flag vessels, a distinction must be made between COI manning levels and the number of billets (and hence mariners) specified by government contract. In every case, COI manning requires fewer billets to be filled. However, General Agents and Ship Managers are required to provide full crews in accordance with their contractual obligations. Unfortunately, the post-*Desert Shield/Desert Storm*

This is not to suggest, however, that *severe* shortages in particular shipboard ratings did not exist. On the contrary, an acute shortage of qualified mariners did (and still) exists. In fact, two categories of mariners were in extremely short supply: radio officers (R/Os) and licensed steam engineers. Indeed, the literature is replete with references to "skill-specific" shortages. In a letter to ADM William J. Kime, the Commandant of the U. S. Coast Guard, Mr. Jerome Joseph, Executive Vice President of District 2 Marine Engineers' Beneficial Association - Associated Maritime Officers (MEBA-AMO District 2)--a principal labor union, wrote: "There is a nation-wide shortage ... of the two sea-going ratings: radio officers and engineers, particularly, 2nd and 3rd assistants" [Ref. 36:p. 1].⁸²

During the initial activation of the RRF, the Shipbuilders Council of America surveyed those shipyards charged with completing the necessary repairs. The purpose of this questionnaire was to record data on the shipyards' abilities to perform the no-notice breakout. Of the forty-one RRF

literature revealed that serious delays were encountered in acquiring full (contract) crews from the maritime unions. Even Jerome Joseph, Executive Vice President of MEBA District 2, stated in testimony before the Subcommittee on Merchant Marine that "All ships that District 2 crewed had Coast Guard minimum requirements aboard the vessel and sailed ... short of contract levels" [Ref. 30:p. 68].

⁸² Corroborated in interviews with RADM Carl J. Seiberlich, USN (Ret.), Vice President, American President Lines, CAPT J. L. Stone, USNR (N42), CAPT Frank X. Johnston, USNR (Ret.), Director, Maritime Administration Western Region, and Mrs. Michelle L. Lewis (N1), Military Sealift Command.

vessels that had been activated, the Shipbuilders Council of America received information on nineteen RRF ships from nine shipyards. Of those, *over one-third* (7 of 19) were reported as having difficulty in obtaining qualified crews. Not surprisingly, experienced steam engineers headed the list of critically undermanned ratings. In fact, the Council's Interim Report concluded that "the unions ran out of crew members about the 20th of August" [Ref. 37].

But steam engineers were not the only merchant mariners in high demand (and short supply). Additionally, there was a dearth of licensed deck officers familiar with, or experienced in, cargo handling operations aboard breakbulk vessels--the type of vessels that make-up the majority of the RRF. Those who have ever served on these "boomships" can attest to the level of skill required to operate the ship's cargo hatches, winches, and booms safely (and efficiently), or negotiate the labyrinth of goosenecks, pendants, falls, slings, and assorted ground tackle. Indeed, self-sustaining ships--like their cargo handling apparatus--demand a modicum of extra care and *experience* from those who maintain and operate them. However, then as now, "licensed deck officers for breakbulk ships ... are not available to the [government] contractors who have the ships under contract" [Ref. 30:p. 67].

In a statement before the House Subcommittee on Merchant Marine on September 26, 1990, Captain Robert J. Lowen, President, International Organization of Masters, Mates, and Pilots (MM&P), testified that the Union had great "difficulty finding qualified boomship mates to man those [breakbulk] ships"

[Ref. 30:p. 67]. Not only were boomship deck officers "few and far between," but the potential for personal injury (including damage to cargo and cargo handling gear) had become exceedingly great. In the words of Captain Lowen, "there were going to be severe casualties when unskilled mates ... handle the gear" [Ref. 30:p. 67]. This sentiment was echoed in a recent interview with CAPT Frank Johnston, USNR (Ret.), Director, Maritime Administration Western Region: "we don't have the qualified bosuns, or the Third Mates or Second Mates that can rig a jumbo boom or even a regular hatch boom ... that is a great concern ..." [Ref. 38].

The task of locating U. S. mariners for the RRF ships and other government-owned sealift assets mobilized fell to the Ship Managers, General Agents, maritime labor unions, and MARAD. And each resorted to "extraordinary measures" to facilitate manning of the RRF. This is not to suggest, however, that these measures were a panacea for all manpower shortages. On the contrary, even with measures in place "there was a ship that left ... with six officers missing" [Ref. 30:p. 69]. But the measures implemented did do much to alleviate the immediate symptoms of the manpower malady.

Even the shipyards readying the RRF vessels were not immune to the shortages in qualified oceangoing labor. In at least one instance, port engineers were "pressed into service" as assistant engineering officers when the ship sailed because "no other officers were available" [Ref. 37]. In another case, a shipyard reported using ex-Navy Chief Petty Officers (with steam experience) to operate the propulsion plant. Clearly, these uncommon actions are

indicative of industry-wide shortages. Even more disturbing, however, is the fact that these actions were taken in response to crewing shortages which arose while manning *less than half* of the RRF.⁸³

Because the sequence, timing, and number of RRF activations affect the magnitude and duration of the manpower-related delays (particularly in the short term), the labor unions were compelled to commit to unorthodox measures to satisfy the immediate demand for qualified seamen. In response to surge manning requirements, the maritime unions solicited both physically-fit pensioners and "inactive" mariners still possessing valid licenses and documents early in the (sealift) crisis. These exceptional practices were confirmed by Mr. Terry Turner, Director, Department of Congressional and Governmental Affairs, Seafarers International Union of America, in a statement before the House Subcommittee on Merchant Marine: "In order to meet the surge in shipping, the union combed its records to identify potential crew members that were not ... registered to ship with our hiring halls" [Ref. 30:p. 72].⁸⁴

⁸³ In other instances, Ship Managers required those shipyards to supply interim engineers to light-off and maintain the machinery through completion of the dock trials. These shipyards were forced to solicit retired engineers who were "at an age where their ability to work long hours under adverse conditions [was] very difficult." Refer to: Shipbuilders Council of America, Interim Report on Participation of U. S. Shipyards in the 1990 Breakout of Ships of the Ready Reserve Fleet.

⁸⁴ The Honorable Warren G. Leback, Maritime Administrator, testified that "the delay in getting crewmen assigned to the RRF ships may be due to ... an overcommitment of personnel" by the unions. See: U. S. Congress, Hearings before the Subcommittee on Merchant Marine of the Committee on Merchant Marine and Fisheries,

Indeed, a number of union pensioners and inactive members were recalled to active service on RRF ships during the Persian Gulf War. However, the definition of a "physically-fit" member was, at the same time, a source of controversy and open to liberal union interpretation:

... I went to [Rota] to watch that transfer (between two Fast Sealift Ships ... I was in the hospital over there, just as a courtesy walk-thru, and there was a little old guy in a room--I thought that he was a dependent father that was being operated on--and I went in to say hello to him ... turned out he was a steam engineer ... he was 82 years old and had a heart attack on the way over (to the Persian Gulf). We don't have too many of those guys left [Ref. 39]

In addition to employing elderly mariners while encouraging Academy alumni associations to "canvass the troops," the maritime unions--with MARAD concurrence--pursued manning and qualification waivers from the U.S. Coast Guard. Although "desperate" measures such as temporary license upgrades for those with half of the required seetime (and without a license examination) and accelerated license exams for First Classmen at the U. S. Merchant Marine Academy and the State Colleges were not employed, the unions did work closely with the Coast Guard to allow those mariners on the "fringe" of the industry to reenter during the conflict [Ref. 40: pp. 15-16]. For instance, in order to compensate for the lack of qualified R/Os, Ship Managers received temporary waivers from the Coast Guard. Also, deck officers lacking *Radar Observer* endorsements were given extensions on that qualification. Additionally, there

Persian Gulf Sealift Requirements, USGPO, Washington, D.C., 1991, p. 43.

there were instances in which the Coast Guard relaxed the manning requirements for bridge watchstanders [Ref. 40:p. 16].⁸⁵

b. Matching Skills to Ship-Type

Almost as worrisome as not having enough mariners from which to draw on in the event of an emergency is not having enough seamen within the various labor categories to operate the demanding cargo and propulsion systems found on the older breakbulk ships in the RRF. Not only are most of the RRF vessels over twenty years old, but they are equipped with cargo handling gear and engineering systems unfamiliar to many present-day seafarers. In the words of Robert J. Lowen, President, MM&P:

The problem is that there is a mismatch wherein the available union resource labor does not match the contractually called-for labor, and those contracts, of course, are with the Ready Reserve fleet. [Ref. 30:p. 67]

Not only did the unions dispatch diesel engineers with little or no recent experience on steam plants to steam vessels, but deck officers practiced

⁸⁵ Ship Managers/General Agents were allowed to substitute a Third Mate in lieu of a Second Officer. Relaxed standards also applied to the wages of unlicensed mariners. By late October, 1990, QMEDs and DMACs (categorized as "skilled" unlicensed mariners) were sailing in the lower-rated capacities of FWT and oiler--but being paid at the higher wage rate--aboard RRF vessels to compensate for severe shortages in those unlicensed ratings. Further, shortages of those with *Lifeboatman* (or other endorsement) in MSC-controlled ships were remedied either by shipboard training or by providing qualified mariners while the vessel was enroute. And in at least one case, Philippine nationals were utilized to crew an RRF ship. Refer to: U. S. Congress, Hearings before the Subcommittee on Merchant Marine of the Committee on Merchant Marine and Fisheries, Persian Gulf Sealift Requirements, USGPO, Washington, D.C., 1991, pp. 52, 141.

only in container operations were ordered to serve aboard breakbulk ships with old-fashioned booms and other relatively complex handling gear. Unfortunately, as the number of licensed and unlicensed mariners with experience aboard older breakbulk-type ships diminishes in response to the state of the industry, skill-related mismatches in RRF manning are projected to escalate. [Ref. 33:pp. 1-7, 8]

Under other-than-wartime circumstances, these mismatches would not pose a significant problem for the any of the parties involved in RRF manning. However, as demonstrated during both Phases of the sealift effort, emergency activations afford few, if any, opportunities to conduct meaningful watchteam training--let alone sufficient time for a proper familiarization on vital shipboard equipment. Not only did some shipyards comment on the relatively poor state of training of engineering crews, but also of the impact of late assignments (and arrivals) on delayed dock and sea trials [Ref. 30:p. 130]. On-the-job training aboard RRF ships, particularly those in five- and ten-day readiness states, was virtually non-existent [Ref. 10:p. 54].

c. Assessment

The no-notice, weekend-initiated activation of the RRF in early August, 1990, nearly exhausted the supply of readily available maritime labor *under the best of politico-military circumstances*. Not only was there broad international support from all corners of the globe, but ships entering the Gulf operated in a low-threat environment--accompanied by an armada of grey-hulled men-of-war patrolling the contiguous waters. Also, the relatively short duration

of this conflict, and hence the sealift effort, spared the labor unions (and MARAD) from having to locate reliefs for those serving continuously at sea. Without a doubt, sustaining a large fleet of RRF ships on a long term basis would exacerbate an already acute crewing problem.

Even under these favorable conditions, the maritime unions fell considerably short in locating the projected 9,000 mariners that would be available for duty aboard RRF vessels. In reality, the unions barely filled the required billets. The lessons to be gleaned from this most recent mobilization is *not* just that shortages in critical seagoing ratings existed while crewing only seventy-eight (of the then-ninety-six RRF vessels), but also that these manning shortfalls are symptomatic of an even greater malady facing the U. S. maritime industry and the DoD: the continued decline in the available pool of mariners. As long as there is a national security requirement to maintain breakbulk-type ships in the RRF, there will be a need to preserve a viable manpower base to crew those vessels.

VI. PLANNING IMPLICATIONS FOR FUTURE SCENARIOS

Three years prior to the Persian Gulf War, the Commission on Merchant Marine and Defense (CMMD) concluded that:

There was insufficient strategic sealift, both ships and personnel, for the United States, using only its own resources as required by defense planning assumptions, to execute a major contingency operation in a single distant theater such as Southwest Asia. [Ref. 41]

Indeed, although millions of tons of military equipment and fuel were moved to SWA, the findings of this Commission were validated by Operation *Desert Shield* and *Desert Storm*. Without the service provided by foreign-flag carriers, the sealift effort--and hence the timely resolution of the Persian Gulf War--would have been in jeopardy. Arguably, the issue at hand is not whether the United States was overly dependent on foreign-flag shipping companies to carry the cargo prior to (and during) the conflict. That fact is not in dispute; the dearth of privately-owned, U. S.-flag vessels compelled sealift planners to turn elsewhere for ships. However, given this maritime reality and the post-Cold War fiscal environment, the pertinent issue is not only whether sufficient sealift will be available, but also whether more of the critical types of sealift platforms (i.e., RO/ROs) can be obtained to meet the CINCs' warfighting requirements in future contingencies. The case being made in this thesis is that regardless of politico-military cir-

cumstances, *mariner* availability, rather than ship availability, will emerge as the critical variable in future mobilizations involving U. S.-flag shipping.

A. THE FALLACY OF A "BEST CASE" SCENARIO

Nearly as perilous to national security as an overreliance on foreign-flag carriers to move military cargo to hostile shores is the danger of relying on a "best case" sealift scenario as the planning foundation for future mobilizations. In retrospect, the 1990/91 sealift response--like the geo-political conditions surrounding the effort--represented a near "best case" scenario as logistics planning gave way to execution. Unequivocally, favorable circumstances contributed to the success of the Persian Gulf War in general, and sealift in particular. Foremost among these factors was the inability of Iraq to counter the build-up of coalition forces in Saudi Arabia or pose a credible threat to the Sea Lines of Communication (SLOC) anywhere in SWA. Not only did American troops marry up with their heavy equipment in a benign--albeit tense--environment, but those vessels carrying the combat equipment transited without incident through the Suez Canal, Bab el Mandeb, and the Strait of Hormuz [Ref. 42:p. 153].⁸⁶ Sealift and theater planners alike must recognize the "non-role" of Iran in the allocation of in-theater assets to protect merchant shipping. Indeed, the *de facto* neutrality of Iran greatly simplified the defensive needs for the transit of coalition shipping

⁸⁶ The fact that coalition naval and air forces exercised a modicum of sea control (and sea denial) over Iraqi units in the shipping lanes assured prompt delivery of cargo once in-theater.

through the Strait of Hormuz to Sea Ports of Debarkation (SPODs) in Saudi Arabia.⁸⁷

With virtually no serious opposition from Iraqi naval or air forces, the United States was given "carte blanche" to execute a two-Phase sealift campaign over a seven month period unencumbered by battle damage to vital port facilities *and with no attrition of shipping assets*. Further, international politics played a key role in the conduct and character of the sealift effort. Because the United States--the *de facto* leader of the coalition--enjoyed near unanimous international support from sovereign states and supranational organizations alike for defensive (and later offensive) operations in SWA, foreign-flag ships and crews were readily available to the U. S. government [Ref. 43:p. xi].

And finally, any discussion of favorable circumstances must include an appreciation for the value of a modern maritime infrastructure and its impact on the pace and conduct of this sealift effort. By having access to modern port facilities and intermodal networks) in Saudi Arabia and neighboring states, American-flag ships carrying equipment to SWA were able to discharge their cargoes quickly and efficiently. Not only were there shipyards *in-theater* capable of accommodating merchant and naval ships in their large graving and drydock

⁸⁷ A belligerent Iran was considered among the possible scenarios from which to design a future (2001) U. S. naval force structure. The scenario's emphasis on a hostile Iran further illustrates why "best case" sealift planning for future MRCs is neither prudent nor realistic. Refer to: SECNAV POM strategy wargame scenario, U. S. Naval War College, March, 1993.

facilities, but most of the fuel needed to support combat operations was obtained from sources in SWA [Ref. 29:p. 7].

But it is precisely because these auspicious circumstances/conditions may not--and likely *will not*--exist when the next MRC occurs that the *Desert Shield/Desert Storm* sealift model forfeits credibility as a planning tool for future mobilizations. In any event, the evidence derived from this most recent mobilization is obvious: although the U. S.-flag merchant fleet cannot singularly satisfy DoD sealift requirements, vessels can be activated and/or acquired on relatively short notice from a variety of government, commercial, and foreign-flag sources; and more importantly, that the quantitative decline in the national pool of maritime labor--critical to the swift and efficient activation (and operation) of government sealift--will play an even greater role in determining the success or failure of future mobilizations as the size of the U. S.-flag commercial fleet continues to diminish.

MARAD employment projections, coupled with recent DoD- and MARAD-sponsored ship acquisition and conversion initiatives, only reinforce the hypothesis that mariner availability will emerge as the *sine qua non* of sealift in the twenty-first century. If the national supply of mariners in 1990/91--then 24,000--could barely support a **partial** mobilization that required 2,700 available seamen, then the maritime labor supply predicted for the turn of the century (11,000 mariners by 2000) will be insufficient to support the projected 142-ship RRF and inadequate to meet the demands of a "nearly simultaneous" two MRC

scenario envisioned in the post-*Desert Storm Bottom-Up Review* [Ref. 44:p. 13]. Arguably, the extent of the manpower problem was masked by the geo-political and military circumstances surrounding the build-up.⁸⁸

The trend is clear: absent maritime revitalization, shortages of highly-skilled mariners will only get worse--regardless of sealift scenario. Indeed, whether or not foreign shipping is available to carry military cargo during an emergency is irrelevant to the near-term RRF manning problem. That an abundance of foreign-flag shipping would be available in any "best case" scenario only solves part of the sealift equation and does nothing to alleviate the causes of specialized manning shortfalls (i.e., the lack of a healthy and robust U. S. Merchant Marine) or address the fact that RRF vessels still must be crewed in a timely fashion. Similarly, in a "worst case" scenario where few (if any) foreign-flag commercial vessels are available for hire, RRF ships--and the crews needed to man them--would perform a greater role in the mobilization. Until such time as the composition of the RRF is changed to reflect the handling capabilities and propulsion systems found in more modern merchant fleets, a cadre of active mariners possessing the requisite engineering and deck-related skills must be maintained.

⁸⁸ Further, the DoD will resort to "[S]ubstantial **coercive** requisitioning of commercial shipping" to alleviate the shortage of vessels during a second, concurrent MRC. Refer to: Joint Chiefs of Staff, Mobility Requirements Study (Volume I), January 23, 1992, p. ES-5.

B. MANNING OPTIONS AND OPPORTUNITIES

The economics of shipping are relatively unambiguous: high union (and shipyard) costs, strict adherence to expensive safety standards, advances in shipboard automation, contrasted with an abundance of "cheap" maritime labor from third world nations have taken their toll on the U. S. Merchant Marine in general, and the maritime labor force in particular. This is not to suggest, however, that the continued deterioration of the maritime industry is beyond the control of those who exercise a modicum of control over industry-wide activities. To the contrary, if substantive maritime reform--and increased American-flag *competitiveness*--is ever to be achieved, "[all elements of] the industry can and must do better" [Ref. 45]. In the final analysis, only a competitive and healthy maritime industry will foster growth in the supply of seagoing manpower.

But long-term solutions are inadequate to rectify the short-term RRF manning problems. Although prior DoD- and DoT-sponsored manpower studies identified shortfalls, the immediacy of the manning problem was all but confirmed during the early stages of the *Desert Shield* mobilization. In testimony before the Subcommittee on Merchant Marine, VADM Paul Butcher, USN, then-Deputy CINC, USTRANSCOM (and former COMSC), declared:

I don't think that you will find anyone who will say that *in 1996* [emphasis added], we will have enough mariners to do the job. [Ref. 30:p. 32]

TABLE 6.1 MERCHANT MARINER FORECAST				
Year	Number of vessels	Licensed Billets	Unlicensed Billets	Total Billets¹
1995	246	2,246	3,737	5,983
2000	148 ²	1,317	1,884	3,201

Source: Maritime Administration, 11 February, 1993.

¹ The total number of billets does not include MSC Civil Service Mariners (CIVMARS) and reflects a "worst case" scenario for the U.S. Merchant Marine in which there are no U.S.-crewed vessels engaged in foreign trade.

² More conservative (yet still alarming) estimates suggest that the size of the U.S.-flag merchant fleet will diminish to 200 ships by the year 2000.

This sentiment was echoed by Robert H. Moore, Director for Transportation Policy, Office of the Assistant Secretary of Defense (Production and Logistics):

... as the size of the active [U. S.-flag] fleet declines, we are concerned that by the late 1990s we may not have enough crews with the right skills to man reserve ships. [Ref. 30:p. 11]

As illustrated in Table 6.1, MARAD projections for employment aboard American-flag ships are equally bleak in the short-term. Although quantitative and qualitative shortfalls are expected to increase as the number of billets aboard American-flag ships decreases, there are a number of measures which, if implemented and institutionalized, could help alleviate the shortage of qualified seamen needed to crew RRF vessels (and other government sealift assets) on

short- or no-notice during a mobilization. None of these measures, however, should be considered as a panacea for the ailing maritime industry.

In the broadest context, there are two methods for closing the gap between the quantity of RRF billets to be filled and the number of qualified mariners available to fill those billets: on the one hand, mobilization manpower requirements may be modified or relaxed (reducing the *demand*); on the other hand, the pool of active mariners may be augmented (increasing the *supply*). Clearly, the latter of the two options is the preferred and only valid method of reducing the gap between RRF billets and mariners. In either case, however, no single measure can hope to eliminate the long-term shortage of qualified merchant mariners.

1. Reducing Manpower Requirements

As demonstrated in Operation *Desert Shield*, the greatest demand for qualified mariners came during the early stages of the sealift mobilization when the turmoil of RRF breakouts was at its zenith.⁸⁹ In spite of the delays caused by mechanical failures and late arrivals of key crew members, the good news was that all of the vessels activated during Phase I sailed to SWA with a full complement of seamen--albeit not all fully qualified at the time of departure. The bad news: activating *less than half* of the RRF depleted the *entire available supply*

⁸⁹ Although surge and sustainment requirements vary according to the type, scope, and duration of the contingency, a "worst case" scenario (a no-notice MRC, or two nearly simultaneous MRCs) is presumed for planning purposes.

of U. S. mariners during the early stages of the mobilization. Irrespective of the scenario, the time for redefining and negotiating reductions in vessel manning requirements (or enacting legislative and regulatory initiatives to that effect) is *not* during the RRF activation process. On the contrary, knowing that future MRCs may not lend themselves to extended (logistics) build-up periods, preplanned measures can ease the RRF manning transition from "cold iron" to "underway, shift colors."

In fact, a variety of measures designed to reduce RRF manpower requirements (and increase the pool of available mariners) were implemented during *Desert Shield/Desert Storm*. As discussed in Chapter V, the maritime labor unions and MARAD petitioned the U. S. Coast Guard for temporary waivers in at least one shipboard rating. And although the actions taken were relatively modest in scope and severity, the concept of modifying federal regulations should be expanded to include other measures for reducing sealift mobilization manpower requirements. Indeed, a number of measures could be preplanned and implemented *upon activation* of the RRF in the event of a national emergency, namely:

- *Adopt a "modified COI" as the standard for manning.* Rather than crewing to *contract* specifications, Ship Managers/General Agents would use a tailored COI (to include the minimum complement of stewards) as a RRF mobilization manpower template.
- *Delete the requirement for an R/O.* Although previous manpower studies had advocated *deleting* the R/O billet, advances in satellite communications, coupled with the introduction of the Global Maritime Distress and Safety

System (GMDSS), have made it possible--and practical--for licensed deck officers to assume most of the duties of a qualified R/O in an emergency.

- *Repeal the Crossover Law.* The United States is one of only two countries which prohibits cross utilization of seamen in the Deck and Engine departments. By repealing this Law, off-watch personnel and non-watchstanders would be available to perform preventive and corrective maintenance under the authority of an inter-departmental maintenance "shop." Not only would the elimination of "crossover" restrictions benefit materiel readiness, but by overturning the traditional organizational paradigm, this measure would prevent redundancies in crewing *and* reduce the total number of billets.⁹⁰
- *Eliminate the three-watch requirement.* Title 46 of the Code of Federal Regulations (CFR) requires a master to maintain "at least three watches" at sea.⁹¹ Again, by repealing this requirement, reductions in mobilization shortages can be achieved. Further, those mariners who would have been needed formerly for RRF vessel X would be available to crew RRF ships Y and Z.
- *Allow a one man bridge watch during open ocean transit.* With the exception of heavy traffic conditions and during periods of restricted maneuvering (and visibility), a single licensed watchstander can assume the functions of a lookout *and* a helmsman (normally an AB). If needed, watchstanders can be summoned quickly to the bridge by a phone call or general announcement.⁹²

Although distasteful to those committed to maritime revitalization, these measures would assist in crewing a larger RRF with fewer (projected) seamen. This list is not exhaustive; there are other proven measures for resolving mobilization shortages. For example, some foreign-flag vessels operate without

⁹⁰ The Crossover Law (46 USC 8104(e)) stipulates that no mariner may serve in both Deck and Engine departments.

⁹¹ 46 U.S.C. 8104.

⁹² In fact, during open-sea conditions, helm control aboard merchant vessels is relegated to the "Iron Mike" (the autopilot).

manned engineerooms. The concept of an unattended engineeroom is neither unique nor new: shipboard automation--once considered to be "the wave of the future"--is here to stay. Indeed, remote monitoring of vital systems has made it possible to reduce seagoing billets. But despite its merits, this measure is technology-dependent. Although ideally suited for diesel-powered ships, automated engineerooms on older, steam-driven vessels is, at the same time, impractical and dangerous. As long as the majority of ships in the RRF is steam-powered, a supply of experienced mariners will be required to man the engineering spaces on those vessels.⁹³

2. Increasing the Labor Supply

Independent of, and in addition to, reducing the number of mobilization billets on RRF ships (and other government-owned vessels), the gap between seafarers and billets can be closed by increasing the national pool of mariners available to fill those billets. Ideally, a healthy U. S. Merchant Marine would provide the employment base--irrespective of seafarer to billet ratios--from which an abundance of qualified seamen could be obtained on short-notice. However, the reverse is equally valid: as the size of the U. S.-flag Merchant Marine plummets in response to market dynamics, the supply of mariners from which to rely on decreases. The influence of a commercially-viable U. S.

⁹³ For a comprehensive analysis of shipping company and union-sponsored initiatives, refer to: Presearch Incorporated, Crewing the Merchant Marine for Mobilization, Report No. MA-RD-840-90013, Arlington, Virginia, January, 1991, pp. V-12 through V-18.

Merchant Marine on the pool of readily available mariners cannot be overemphasized. In the words of Mr. Louis M. Lambremont, a senior executive with Sea-Land Service, Inc., during a recent interview:

Unless we're there (U. S.-flag carriers) to provide year-round employment to the merchant mariners, [then] you are going to lose that resource ... and be it now or in the year 2005, when you do have an emergency and you have to activate vessels, you may not have the manpower to do it. [Ref. 46]

Aside from maritime reform and revitalization, there are a number of measures which, if implemented, will increase the national supply of "surge" manpower. And like those which focused on reducing mobilization requirements, some supply-side measures were instituted during the Gulf War. For instance, not only did the U. S. Coast Guard relax manning requirements and grant extensions and waivers for particular endorsements--in essence modifying regulatory provisions to increase the supply of mariners, but indirect methods including wage compensation encouraged "skilled" unlicensed seamen to "sign-on articles" as lower-rated members in (engineering) departments aboard RRF ships.

In any event, these *ad hoc* measures can be expanded and institutionalized to cover a variety of billets and qualifications. Not only are these supply-side measures at once bureaucratically-feasible, fiscally-realistic, and *functional*, but the adoption of such measures could serve as the framework for a federal "List of Manning Exceptions" to be implemented during a national emergency or wartime. Additionally, programmatic initiatives sponsored by DoD and DoT warrant reconsideration and more importantly, budgetary support.

a. The U. S. Maritime Service Reserve

The legislative authority to (re)establish a U. S. Maritime Service (USMS) to train officers and unlicensed mariners aboard American-flag merchant vessels is provided by the Merchant Marine Act of 1936, as amended.⁹⁴ The rationale for creating a MARAD-administered USMS Reserve is straightforward--the dearth of qualified seamen to man sealift vessels. The principal objective of the proposed Reserve program is equally direct: to establish a civilian merchant marine manpower pool capable of augmenting the (active) seagoing workforce in a crisis. This cadre of qualified mariners would be available to MARAD for immediate call-up in an emergency to crew the RRF and other government-controlled sealift assets.

Although a variety of high- and low-cost options have been proposed, the underlying philosophy of this USMS Reserve program is to recruit licensed and unlicensed mariners currently employed ashore. Because the program targets both licensed *and* unlicensed seamen, MARAD would be able to choose from among a number of manpower sources. Of the potential sources, two hold the most promise for inclusion into the USMS Reserve: seafarers who leave the active workforce; and those who complete one of the training programs but are unable to secure employment on U. S.-flag merchant vessels. In any event, the intent of the program is to man only that portion of the RRF which

⁹⁴ 46 U.S.C. 1295 (e) .

cannot be crewed through commercial methods (union hiring). Although USMS Reserve personnel would be used to cover any manning shortages, those seamen actively sailing in the U. S. Merchant Marine would remain the primary source of labor during contingency RRF mobilization.⁹⁵ [Ref. 27]

b. USNR-Manning of the RRF

The DoD is considering a program similar in scope and purpose to a MARAD-sponsored U. S. Maritime Service Reserve. Rather than relying on *civilian* mariners, U. S. Naval Reservists would crew *only* those RRF vessels which cannot be manned through commercial means [Ref. 35].⁹⁶ As with any initiative, the final objective of this proposal is the quick and efficient activation of the RRF in wartime. To that end, "hybrid" naval reserve crews would be used to activate (and man) the least commercially viable ships in the RRF on short notice.⁹⁷ But unlike the USMS Reserve initiative, RRF vessels crewed by USNR personnel

⁹⁵ Recent estimates have scored this proposal at \$11 million per year for a 2,000-member USMS Reserve program. Despite criticisms over training effectiveness, low-end costing, the ability to deploy quickly, and concerns regarding the involuntary recall of civilians during wartime or national crisis, a USMS Reserve not only provides a readily available pool of *qualified* mariners in the event of mobilization, but offers an opportunity for those not sailing actively to continue their affiliation with the U. S. Merchant Marine (while preserving their "perishable" skills).

⁹⁶ Annual cost for a 2,000-member U. S. Naval Reserve program (crews and training included) has been estimated at \$20 million.

⁹⁷ In its present form, this program proposes USNR-manning of the RRF on a **crew by crew** (not billet by billet) basis. The justification for this methodology is clear: it is at once impractical and illegal to hold civilian and military personnel on the same ship to the same standards of conduct and discipline.

would no longer enjoy the status of "innocent" merchantmen in a maritime court or a war zone; on the contrary, unlike their civilian counterparts, RRF ships manned by USNR personnel (on active duty) would assume the legal status of "U. S. Naval Ships"--with all the rights and obligations accorded to men-of-war.⁹⁸

[Ref. 35]

The composition and structure of this USNR-manning program warrant review. As proposed, this program would rely heavily on the Merchant Marine Reserve, U. S. Naval Reserve (MMR-USNR) program as a source of *skilled* manpower.⁹⁹ Although the intent of this MMR-USNR program is to ensure that merchant marine officers are indoctrinated in naval tactics and communications procedures, licensed deck, engineer, and radio officers affiliated with the MMR-USNR program but who are no longer sailing actively would be recruited to form nucleus RRF crews.¹⁰⁰

⁹⁸ Strictly interpreted, merchant vessels manned by active duty naval personnel surrender their status as unarmed merchantmen. In effect, these ships would be considered as *combatants*. As such, they are subject to the same rules of engagement (ROE) afforded to belligerents.

⁹⁹ The primary source of MMR-USNR officers is the U. S. Merchant Marine Academy at Kings Point. Mariners who receive commissions in the MMR-USNR, including merchant marine officers (actively) sailing and those licensed but employed ashore in the U. S. maritime industry, compose the Merchant Marine Individual Ready Reserve Group (MMIRRG).

¹⁰⁰ Those MMR-USNR officers actively sailing in the U. S. Merchant Marine would continue to crew merchant ships during mobilization. The criteria for success of USNR-manning is "to equal or exceed [the] capabilities of [a] commercial crew hastily formed from [the] union hall." See: CAPT Frank Flyntz, "Crewing the RRF: Status Report," briefing for VADM Loftus, USN, (N4), on 30

In fact, a three-tier approach to officer manning is envisioned in this USNR program. In addition to petitioning MMIRRGs who are no longer employed by U. S.-flag carriers, Naval Reserve officers possessing a valid license--as well as reservists holding a surface warfare designator--would be likely candidates for inclusion. Indeed, there are many potential benefits from USNR-manning of RRF vessels: not only would reservists be formed into crews and assigned to particular RRF ships, but each participant would receive equipment-specific training; further, involuntary call-up (and the employment rights which accompany military duty during an emergency) are part and parcel of a reserve commitment; and finally, latitude is given to "public vessel" manning *vis a vis* COI guidelines.

Unfortunately, this USNR-manning program is biased towards *licensed* billets aboard RRF ships. By definition, the MMIRRG is a source of *reserve officers*; there is no enlisted equivalent in the Merchant Marine. Until such time as the MMR-USNR is expanded to include enlisted ratings/unlicensed seamen, advocates of USNR-manning are in the unenviable position of having to "attract" enlisted personnel from non-merchant marine-related surface reserve units to fill unlicensed billets aboard RRF ships.¹⁰¹

August 1993.

¹⁰¹ Approximately twenty-six (of the thirty-six) billets per RRF ship would be manned by unlicensed/enlisted personnel.

c. Other Manning Opportunities

In addition to the aforementioned manning programs and billet-reduction initiatives, there are other RRF manning opportunities which, if exploited, also would increase the maritime manpower supply available during sealift mobilization. Among the more promising of RRF-manning opportunities include:

- *Conversion of "non-deep-sea" maritime labor.* Data from previous manpower studies not only indicate that "thousands" of seamen employed in the non-deep-sea maritime industry are available for sealift-manning, but confirm that their nautical skills closely resemble those needed by their deep-sea counterparts.
- *Relaxing/waiving federal regulations.* Modifying USCG licensing requirements in order to increase the supply of seamen is a proven (and relatively safe) technique. Not only were minimum seetime requirements reduced *by half* during the Vietnam War, but MARAD accelerated the graduation dates of the USMMA in 1966 and 1967 to meet the demand for licensed mariners.
- *Active-duty manning.* Although considered a politically sensitive measure (and one that would require executive and/or legislative support), active duty Navy personnel could assist in the rapid and efficient activation (and if necessary, the subsequent operation) of RRF vessels. Because there is a wealth of knowledge--particularly in steam engineering--within the Navy community, personnel possessing those perishable engineering skills would be invaluable as operators and/or "sea partners" to civilian mariners until available or adequately "refreshed."
- *Recruiting of former military personnel.* Another variation of the same (military) theme: a plethora of Navy, Coast Guard, Army Corps of Engineers (and NOAA) personnel could fill both licensed and unlicensed billets in RRF ships with the minimum of training.
- *Augmenting RRF crews with CIVMAR personnel.* Because a number of MSC-owned ships do not have a wartime mission *per se* (nor are they outfitted to load/offload cargo), at least some of the mariners who would be assigned to those particular ships could be made available to man RRF ships during the early stages of a sealift mobilization.

- *Providing MARAD with the authority to crew RRF vessels.* Currently, no legislative mechanism exists to "draft" mariners in wartime or to provide the government with the authority to crew "priority" vessels during a mobilization. Either--or both--of these measures would facilitate the prompt crewing of RRF vessels.
- *Capturing "leavers."* Arguably, the most salient of the opportunities is the need to attract those active duty sailors and merchant seamen with deck, engineering, and radio/communications skills who have left the sea into an affiliation with either a MARAD- or DoN-administered reserve program.
- *Expanding the MMR-USNR program.* Serious consideration should be given to augmenting this program to include enlisted ratings/unlicensed personnel. Make the MMR-USNR program an "attractive" career option for those seeking a commitment in the Naval Reserve.

Again, two key points merit reiteration: first, like their demand-side counterparts, these measures can be institutionalized to facilitate the activation of the RRF in future contingencies. Although no single measure can hope to eliminate the gap between billets and mariners, the adoption of any one measure (or preferably a combination of measures) would ease the RRF manning shortage. Secondly, and more importantly, none of these measures are a panacea for the ailing U. S. Merchant Marine. Without substantive reform, the maritime labor supply will continue to fall precipitously. Nevertheless, the time to implement these measures is now--before the RRF manning problem surfaces again during the next MRC or extended crisis.

VII. CONCLUSIONS AND RECOMMENDATIONS

Historically, U. S.-flag merchant vessels have carried over ninety-five percent of all military cargo during wartime. Today, that same U. S. Merchant Marine--indispensable to a global strategy based on credible forward presence and to the economic security of the nation--is on the verge of extinction. Often described as America's "fourth arm of defense," the decline of the U. S.-flag Merchant Marine *vis a vis* other maritime states must not be viewed solely as an economic issue devoid of military importance. On the contrary, as demonstrated again in Operations *Desert Shield* and *Desert Storm*, the lack of a healthy and robust U. S. Merchant Marine (and maritime infrastructure) will impact adversely on the ability of the U. S. Department of Defense to carry vital equipment and supplies to distant theaters in support of national (and multinational) objectives.

Despite the accolades during and since the Persian Gulf War, the sealift response was, at best, a qualified success. Although millions of tons of cargo and fuel were carried to SWA, the issue of whether sufficient sealift is--or *will be*--available on short-notice in an emergency warrants reconsideration. Even as late as January, 1991, manpower estimates for the latter part of the decade were overly optimistic. One MARAD-sponsored study concluded that "shortages do not exist for *surge* scenarios in ... 1995, but [shortages] do exist for sustained sealift

scenarios" [Ref. 27:p. XI-23].¹⁰² As the *Desert Shield* mobilization demonstrated, this evaluation was premature and incorrect; surge manpower shortages occurred nearly a *decade* earlier than anticipated. The trend is clear and the evidence compelling: *mariner* availability, not ship availability, will emerge as the critical variable in the sealift equation.

As with previous sealift mobilizations, the *sine qua non* of logistics during the Persian Gulf War was the capability to carry maximum payload to the SWA theater as quickly as possible. However, one is cautioned against making Operations *Desert Shield* and *Desert Storm* the policy model for sealift operations in the post-Cold War environment. Although particular aspects of the sealift response during the Persian Gulf War parallel the Vietnam sealift effort, and are instructive as planning tools for future regional conflicts, placing too much emphasis on the conduct or characteristics of this recent MRC does as much to misrepresent the status of the American Merchant Marine as to disregard the geopolitical and military conditions in August, 1990. Not only was the United States given "carte blanche" to execute a two-phase sealift campaign over a seven month period, unencumbered by battle damage to vital port facilities in SWA and without attrition of commercial shipping, but an abundance of foreign-flag vessels was available to carry the lion's share portion of surge and sustainment cargo to SWA.

¹⁰² This same study concluded that surge phase shortages in maritime labor would occur by the year 2000.

It is precisely because these (and other auspicious circumstances) may not exist when the next regional contingency occurs that the *Desert Shield/Desert Storm* sealift model forfeits credibility as a framework upon which to chart future mobilizations of the RRF. Notwithstanding the unique geo-political climate caused by the Iraqi invasion of Kuwait, sufficient commercial shipping--American and foreign-flag--was (and could be) available to carry DoD equipment. Although sufficient U. S.-flag sustainment lift was achieved, American shipping companies (and the RRF) were unable to satisfy surge requirements. Indeed, this was a global effort, both in terms of distance from CONUS to SWA and the many nations from which sealift was acquired.

Additionally, a number of measures could have been taken to increase the supply of U. S.-flag (and U. S.-controlled) shipping particularly in the early stages of the mobilization. In fact, a conscious decision was made by the leadership in the Pentagon and MARAD not to include certain categories of shipping assets in the sealift call-up. Sealift planners worked under self-imposed constraints regarding the utilization of commercial vessels in order to preserve market share *status quo* for U. S. carriers. Clearly, the abundance of foreign-flag vessels was a key factor in the decision not to disrupt commercial shipping interests. If required to support logistics operations, vessels participating in the SRP and VTA as well as militarily-useful EUSC vessels could have been pressed into government service. However, none of these measures were implemented. Nor was any political decision made to request assets from NATO or to pursue other

politically-expedient avenues for foreign-flag shipping. The case being made here is that it might be feasible to obtain sufficient U. S.- and foreign-flag sealift to satisfy the logistics demands of future conflicts.

But the term "sufficient sealift" goes beyond the parochial definition of sealift as *ships*. Sufficient sealift requires more than merely possessing or having access to enough vessels to move military cargo in time of war; maritime labor also is needed as a precondition for effective mobilization. Unfortunately, the pool of qualified, actively sailing mariners continues to fall precipitously in response to the decrease in the size of the U. S.-flag Merchant Marine. MARAD employment projections only reinforce the hypothesis that mariner availability--more specifically, *the lack of qualified U. S. merchant mariners*--will emerge as the critical variable in future mobilizations. The fact that the labor supply was sufficient to crew MPS, APS, FSS, MSC-owned and American-flag commercial ships in the latter half of 1990 does not diminish the seriousness and immediacy of the nationwide manning problem. On the contrary, if the national pool of actively sailing mariners--then 24,000--was all but exhausted in a geo-political "best case" scenario which required neither reliefs for those sailing nor the crewing of the balance of RRF vessels (not to mention the participation of SRP, VTA, and EUSC ships), then the projected maritime labor supply of 11,000 mariners by the year 2000 clearly will be insufficient to crew the 142-vessel RRF and inadequate to meet the needs of a "nearly simultaneous" two MRC scenario as envisioned in the post-*Desert Storm Bottom-Up Review*.

Indeed, the immediate requirement for sealift, coupled with the no-notice activation of the RRF, exceeded the capabilities of the maritime labor unions to provide qualified crews at contract levels. According to pre-*Desert Storm* manpower estimates, a pool of 9,000 actively sailing mariners would be available to crew the RRF in an emergency. However, this figure was not realized; even under the most favorable circumstances, the maritime unions fell considerably short in locating active seamen to fill the required billets on RRF ships. Moreover, "extraordinary measures" were taken just to obtain the 2,700 mariners needed to crew *eighty percent* of the Ready Reserve Force. (In fact, these *ad hoc* measures were implemented in response to manpower shortfalls which arose while crewing *less than half* of the ships in the RRF inventory during Phase I of the mobilization).

In addition to quantitative shortages, *qualitative* shortages were experienced during the no-notice activation of the RRF. Not only did the maritime labor unions dispatch diesel engineers with little (or no) recent experience on steam plants to steam-powered ships, but deck officers practiced only in container handling operations were ordered to older breakbulk ships with old-fashioned booms and complex arrays of handling gear. Unfortunately, as the number of licensed and unlicensed seamen experienced in breakbulk operations diminishes in response to the (depressed) state of the U. S. Merchant Marine, skill-related mismatches in RRF assignment are expected to multiply.

The foremost lesson to be relearned is that there is no substitute for a dependable, American-flag *fleet-in-being* to provide the merchant ships and mariners needed in an emergency. However, absent maritime revitalization, neither the ships nor the skilled mariners will be available to support logistics operations in SWA or any other theater. The fact that an abundance of foreign-flag vessels may be available in any "best case" scenario does nothing to alleviate the causes of the personnel shortages or address the requirement to crew the RRF expeditiously. Even in a near "worst case" scenario, where few foreign-flag ships are available to move military cargo, the RRF--and the seamen needed to man them--would play a greater role in the logistics effort. In the final analysis, as long as there is a national security requirement to maintain an RRF--let alone an RRF that is composed primarily of older breakbulk-type vessels, there will be need to preserve a manpower base to crew those sealift assets.

It is at once ironic and incomprehensible that the National Performance Review should recommend reducing support for maritime training programs at a time when the nation-wide pool of actively sailing mariners cannot support the wholesale activation of ships in the RRF. Although frequently among the last to receive formal recognition (and funding), strategic sealift is an enabling capability that cannot be reconstituted easily or quickly to suit the logistics needs of the moment. This study has highlighted a number of measures which, if implemented, would reduce the disparity between RRF billets and (available) mariners. Ideally, a healthy U. S. Merchant Marine would provide sufficient

numbers of seamen. But if recent history can be used as prologue to the next decade and beyond, sweeping reform will not be forthcoming. Faced with this reality and the need to maintain a cadre of qualified seamen to crew government vessels, mobilization manning requirements can be relaxed (*reducing* the demand for seamen) and the manpower pool can be expanded (*increasing* the supply of mariners).

Although no single measure or programmatic initiative will eliminate the gap between billets and mariners, the majority are bureaucratically-feasible and fiscally-responsible. These measures are not without historical precedent; some were implemented successfully during the Vietnam War. The challenge, then, is to expand and institutionalize these formerly *ad hoc* measures to include a variety of merchant mariner qualifications. In doing so, serious consideration should be given to establishing not only a crisis-oriented federal "List of Manning Exceptions," but also a dual program for RRF manning. A MARAD-sponsored Merchant Marine Reserve *and* a Navy-administered manning program--complementary in scope and mission--if enacted, could provide and *train* enough mariners to crew government vessels on short-notice.

In any case, the evidence derived from the Operation *Desert Shield/Desert Storm* mobilization is straightforward: although the U. S.-flag Merchant Marine cannot singularly meet DoD sealift requirements, under favorable circumstances vessels can be activated and/or acquired from a variety of government, commercial, and foreign-flag sources; and more importantly, that the quantitative

and qualitative decline in the supply of available maritime manpower will assume an even greater role in the success or failure of future regional conflicts. It is time to chart the course by setting priorities. We cannot afford to do less.

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