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THESIS

AN ANALYSIS OF THE PROBLEMS INVOLVED
IN THE UTILIZATION OF MERCHANT SHIPPING
TO SUPPORT THE U.S. GOVERNMENT DURING
DECLARED MOBILIZATION SITUATIONS.

by

Philip Stephen Hannaford

September 1980

Thesis Advisor:

Dan C. Boger

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A0932	3. RECIPIENT'S CATALOG NUMBER 492
4. TITLE (and Subtitle) An Analysis of the Problems Involved in the Utilization of Merchant Shipping to Support the U.S. Government During Declared Mobilization Situations		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis; September 1980
7. AUTHOR(s) Philip Stephen Hannaford		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		12. REPORT DATE September 1980
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		13. NUMBER OF PAGES 62
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Merchant Marine National Defense Reserve Fleet Military Sealift Command Maritime Administration		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This study examines the utilization of the current United States (U.S.) Merchant Marine to respond to the demands placed upon it by a full military mobilization. Included is a brief history of the Merchant Marine, its relationship to the National Defense Reserve Fleet and the Military Sealift Command controlled fleet. Also discussed in the analysis are the procedures for requisitioning the Merchant Marine, the roles it might fulfill.		

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An Analysis of the Problems Involved
in the Utilization of Merchant Shipping
to Support the U.S. Government During
Declared Mobilization Situations

by

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Submitted in partial fulfillment of the
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MASTER OF SCIENCE IN MANAGEMENT

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ABSTRACT

This study examines the utilization of the current United States (U.S.) Merchant Marine to respond to the demands placed upon it by a full military mobilization. Included is a brief history of the Merchant Marine, its relationship to the National Defense Reserve Fleet and the Military Sealift Command controlled fleet. Also discussed in the analysis are the procedures for requisitioning the Merchant Marine, the roles it might fulfill in wartime, and the types of ships available in the present inventory. Conclusions and recommendations are described. Of particular note is the need for foreign purchase of vessels to be used in U.S. ocean-going commerce, the necessity of establishing a national maritime policy, and the continuation of governmental agency interaction to study the Merchant Marine.

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I. INTRODUCTION

The capability of the United States (U.S.) Merchant Marine to support the rapid deployment of U.S. forces in an all-out war plus maintain present raw material pipelines to the U.S. is currently open to question. Doubt exists because of the erratic history of the Merchant Marine throughout past periods of conflict, when massive shipbuilding efforts had to be undertaken in order to provide adequate shipping.

During both World Wars and, to a lesser extent, the Korean and Vietnamese conflicts, the U.S. began each crisis with too little usable shipping to directly support the fighting forces, and also provide the materials back home to make the "machines of war." As the wars progressed, the U.S. marshalled its capacities and constructed the necessary tonnage. However, in each case, once hostilities abated, the shipping industry was allowed to lapse into chronic decline. Newly built ships were sold off and shipyards were shut down.

The potential for history to repeat itself exists today. Despite previous lessons and mass subsidy programs, today's U.S. Merchant Marine plays only a minor role in international oceanborne commerce, carrying less than five per cent of U.S. foreign trade in 1979. [1:33] This means that the U.S. must depend on foreign ships to carry 95 per cent of American imports and exports. This reflects the relatively small size

and capacity of the fleet as compared to those of other countries. In fact, of the 577 ships in the U.S. flag ocean-going fleet in 1979, approximately 248 were actively engaged in foreign commerce with the rest involved primarily in trade along the Atlantic, Pacific, and Gulf coasts of the U.S.

Given its present status, of what value would the Merchant Marine be should the U.S. be called upon to fight another war, a war on the scale of the previous World Wars such as a Russian invasion of Europe?

Specifically, this research attempts to answer the following questions:

If a presidential order were issued mobilizing the available privately owned ships, just what assets would be eligible to be mobilized; what is the procedure required for this mobilization to take effect; what ship-types exist; where would they fit in the support functions required by an all-out war; and would the present fleet be adequate to support a long term engagement or would more massive shipbuilding programs be required?

In seeking answers to these questions, the author intends to describe a general history of the Merchant Marine, touching primarily on various pieces of legislation considered significant.

After this background, a description of today's Merchant Marine will be presented with up-to-date facts and figures on

its relative world position. Also included, will be a breakdown of the types of ships in the current inventory plus some figures regarding their geographical utilization.

With the stage set as to numbers and types of assets, an in-depth analysis will follow. In this section, methods of acquiring ships by the government, the priorities involved in their utilization, the roles of both the National Defense Reserve Fleet (NDRF) and the Military Sealift Command (MSC) controlled fleet will be described. Additionally, certain support missions as related to types of ships available will be addressed. Finally, within this section, data will be presented on certain military tests conducted in recent years concerning the use of the Merchant Fleet.

The last section will deal with conclusions and recommendations based on the analysis conducted.

II. THE PROBLEM

A. BACKGROUND

Except for periods of war, over the past century, the United States commercial shipping industry has been in a state of constant decline. This trend has been in both capital equipment, i.e., numbers and capabilities of ship types, and in percentage of U.S. commercial business transported. This decline has been in spite of the expenditure of great sums of money through massive subsidization programs. Before discussing the current situation, some historical background will help show how today's situation came about.

During the history of early America, ships and shipping suffered through growing pains that any relatively new industry might undergo in a new country. However, with plenty of forests to draw from, the United States (U.S.) gradually became pre-eminent in the building of wooden ships. Through government sponsored trade agreements, the U.S., until the early 1800's transported over 80 per cent of its goods via its own flag ships. [2:53] However, when steamships were invented in the early part of the century, America declined to take expeditious advantage of such vessels, leaving it to the British to develop them. Instead, America dedicated time and money to the wooden sailing ship culminating in the design of the fast, sleek clipper ships in the 1840's. England, meanwhile, was investing heavily in iron steamships.

The Civil War further stunted the growth of American shipping through massive destruction of the country's ships. In an attempt to avoid this destruction, shipowners sold off many of their assets to foreign countries. As much as one-third of the merchant fleet was sold outright during the four years of the Civil War. [2:57] By 1866 only 32 percent of American trade was carried in American ships. [2:58]

With the post-war interest in railroads and the opening of the West, maritime matters received less and less attention by the government. By the turn of the century, U.S. ships carried less than 10 percent of U.S. foreign commerce. [2:58]

The trend continued up to World War (WWI), with foreign countries outstripping the U.S. in the development and production of iron and steel ships. The English, particularly, due to large economies of scale and protected by favorable governmental rules and regulations became "undisputed masters" of shipbuilding in the early 1900's. [3:09]

A law, passed in 1817 requiring shipowners to buy only American-made ships, heavily restricted the potential growth of the fleet. The basic problem, which still exists today, was that high costs associated with American shipyards made U.S. flag ships more expensive to purchase than the foreign models. With higher fixed costs initially, these ships were less competitive than those of foreign manufacture since

higher rates had to be charged to recover costs. Helping to perpetuate high costs was the Seamen's Act of 1915, which directed that the crew of U.S. merchant flagships had to be American. American crews were traditionally more expensive than the foreign nationals most often used on the ships of other flags.

Laws such as these, while presumably benefitting shipyards and merchant seamen, worked to the disadvantage of the industry as a whole since fewer ships were built. For example, the policy to protect American shipyards from overseas competition raised the price of ships "to U.S. operators by 40 to 50 percent." [3:30] The response of the industry was to maintain utilization of out-dated technology so that as late as 1890 the majority of the fleet was comprised of sailing ships. [3:30]

In WWI, and later in World War II (WWII), massive shipbuilding efforts were undertaken because, at the beginning of each conflict, the U.S. simply did not have enough vessels to properly supply its allies. The Shipping Act of 1916 gave temporary authority for civilian and governmental purchase or lease of foreign ships in order to offset the wartime U.S. shortages. It also spurred a surge in ship construction, resulting in the mass production of over 2,000 units, one-third of which did not reach completion before the war was over. [4:5]

Two pieces of Congressional legislation, the Merchant Marine Acts of 1920 and 1928, attempted to deal with the glut

of ships which choked the harbors after WWI. And they tried to establish a clear policy regarding the Merchant Marine:

... That it is necessary for the national defense and the proper growth of the 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 auxiliary in time of war or national emergency ... ultimately to be owned and operated by citizens of the U.S. [4:5]

These acts established a system of trade routes to be sold to American citizens, and directed that all U.S. mail be carried in U.S. ships. [3:33] The 1928 Act further expanded the mail system, establishing a subsidy program for mail carriers. The subsidy was to allow these carriers to replace their fleets. Some new ships were, in fact, built. However, despite the combined efforts of the two acts, the 1920's did not have the trade necessary to support the equipment manufactured during the war. So, much of the ship inventory was sold off at very reduced prices. And, since there were already too many ships on hand, no incentive existed for further development of new technology at any great speed. The ships that did remain in service all aged together heading for the point in time when they'd all be obsolete at once.

It was the realization of this impending disaster which resulted in the passage of the Merchant Marine Act of 1936. This was the first new approach to the problems which existed in maritime industry. Through programs of direct subsidy, the goals of the Act were to increase the number of ships built

in American yards, provide jobs and high wages for merchant seamen still suffering under the effects of the depression, and to ensure a capable merchant fleet as a part of the overall defense program of the U.S. It also established an organization, The Maritime Commission, to monitor the industry.

The real impact of the Merchant Marine Act of 1936 was in the subsidization program. Now the federal government was empowered to fund a large part of the costs associated with both construction and manning of U.S. flag vessels. Two separate subsidies were legislated. The first was called the Construction-Differential Subsidy (CDS), where the government paid the shipyard the difference between what the American yard charged and what a foreign yard would charge. The shipowner paid up to the costs of the foreign construction and the federal government paid the rest, within certain limits. Initially, the government would pay only 33 percent, but later a 50 percent limit was imposed. This limit was in effect until 1960, when it was raised to 55 percent. The 1970 Merchant Marine Act, to be discussed later, took steps to reduce this percentage and, as of 1976, it was reduced to 35 percent. [2:79]

Certain criteria were established for a yard to be eligible to participate in the CDS:

1. The vessel constructed must be utilized in foreign commerce;
2. Crew members on subsidized cargo ships must be American citizens;
3. The Navy Department must approve construction plans to determine the vessel's suitability for use in times of national emergency;

4. The vessel must be registered in the U.S. for at least 25 years. [2:80]

The CDS in reality is a direct subsidy of the shipbuilding industry and not actually to the Merchant Marine itself. As an example of the amount of subsidies paid out under the CDS program, in 1978, \$156 million was disbursed to various shipyards, bringing the total from 1936 through 1978 to over \$2.8 billion in federal aid. [5:97]

The other particular subsidy program under the Merchant Marine Act is called the Operating-Differential Subsidy (ODS). This is an attempt, through direct payments to certain shipowners, to offset the cost differences between running an American flag ship as opposed to a foreign one (usually much cheaper). The amount of the ODS:

... shall equal the excess of the subsidizable wage costs of the United States officers and crews, ... cost of insurance ... and maintenance over the estimated fair and reasonable cost of the same items (less the cost of defense features) if such vessels were operated under the registry of a foreign country ... [2:83]

Additionally, the eligible ships had to be constructed in the United States and be of the technology and size so as to be efficient and competitive in foreign trade.

The bulk of ODS, approximately 85 percent, generally goes to wages, old-age pensions and unemployment benefits. Insurance accounts for about 8 percent and maintenance about 7 percent. [2:84] The payments under the ODS facet of the 1936 Act were over \$303 million in 1978, with a total since 1936 of \$5.2 billion. [5:97]

The Merchant Marine Act was designed to provide needed shipping services for American manufactured and agricultural products at rates comparable to those of foreign competitors. The timing of the act was most opportune, since shortly after its passage, the United States became involved in WWII.

As in WWI, the U.S. transportation industry found itself with insufficient numbers of ships to handle the role required of it. Additionally, much of the tonnage that was available was destroyed early on.

So, the country embarked on another around-the-clock building program. Between 1940 and 1945, U.S. yards built "5,037 merchant vessels of 2,000 gross tons and over." [3:53] However, once the war was over and the post-war shipping boom ran its course, the U.S. again had an overabundance of ships.

Passed in 1946, the Merchant Ship Sales Act allowed the government to sell off many of these excess ships to U.S. citizens as well as friendly foreign countries whose shipping had been decimated by the war. Of those sold, 843 were to American-flag operators and 1,113 to foreign flags primarily England, Norway, and France. [2:91] The remaining vessels, over 1800, were relegated to the National Defense Reserve Fleet (NDRF). [2:91] The U.S. Merchant Marine fell back into a period of decline for much of the same reasons as post WWI: too many ships available worldwide, and a lack of business to support this number.

The conflicts in Korea and Vietnam brought sporadic interest in the merchant fleet but any requirements that merchant ships couldn't handle were met by activating ships from the NDRF, ships that were beginning to deteriorate rapidly, since most were over 20 years old and suffering from disuse.

The war in Vietnam had held off the forecasted shrinking of the merchant fleet due to its intense use during the middle to late 1960's. A downward trend had existed since WWII, but temporarily stalled, despite predictions by The Maritime Administration (MARAD), due largely to the Vietnam War. Table 1 shows the total number of ships, 1,000 tons or over from 1960-1973.

TABLE 1. TREND OF MERCHANT SHIPS 1960-1973

<u>YEAR</u>	<u>NUMBER OF SHIPS</u>
1960	945
1961	903
1962	885
1963	911
1964	916
1965	946
1966	957
1967	918
1968	919
1969	811
1970	768
1971	698
1972	598
1973	568

[3:206]

However, once the war began winding down, the numbers of ships decreased either through scrapping or internment in the NDRF. The most drastic cut occurred between 1968 and 1972 when over 300 ships went out of active service. [3:206]

The 1936 Act had set the stage for adequate construction of a proper mix of cargo ships, bulk carriers (oil, ore, and grain), and tankers (fuel products). However, ship production never became a gradual, regulated, planned system. Thus, in 1969 about 60 percent of all U.S. flag ships were over 20 years old and in that year, U.S. ships carried the smallest percentage (4.6) of the nation's own cargo in this century up to that time. [4:13]

The Merchant Marine Act of 1970 perpetuated the same principles as its forerunner in 1936. Additionally, it took into consideration the changes in the industry regarding ship size, speed, and the movement away from a labor-intensive to capital-intensive environment, this reflecting the advancement of automation.

Pursuing the policy of helping to maintain American shipyards, the Act called for the production of 300 new vessels between 1971 and 1980. [2:93] Promoting standard designs, it sought to reach certain economies of scale as the number of ships produced increased. Additionally, whereas before shipowners applied for CDS funds, the yards were now given the opportunity to request the subsidies to build ships in advance of any firm orders.

The Act also allowed the Secretary of Commerce to purchase foreign components for ship construction to preclude long delays encountered waiting for American production. With renewed interest and new subsidies available as a result of the 1970 Act, there was a sudden spurt in shipbuilding.

While the 300 new-ship construction goal has not been reached, approximately 175 ships were constructed in the decade of the 1970's. [1:31] These new vessels replaced older ones retired or sold overseas so that the total number of ships available has not changed drastically. However, there has been an increase in total tonnage available between 1973 and 1979. See discussion below.

B. THE MERCHANT FLEET - 1980

Today's active private ocean going fleet is composed of a mix of ships which, as of September 30, 1979, included 577 vessels, totaling 18.7 million deadweight tons (dwt), as compared to 586 ships, totaling 13 million dwt on September 1, 1973. [3:204] The various types included in this mix are: general cargo freighters, containerships, barge carriers known as Lighter Aboard Ship (LASH) and SeaBee ships, tankers, roll-on/roll-off (RoRo) ships, and liquid petroleum gas (LPG) carriers, among others. [5:24] The following breakdown applies:

<u>Vessel Type</u>	<u>Number in 1979</u>
Combination Pass/Cargo	6
Freighters *	126
Bulk Carriers **	18
Tankers	268
Intermodel ***	<u>159</u>
TOTAL	577

* Includes partial containers and break bulk ships

** Oil/Bulk/Ore carriers

*** Full containerships, Ro/Ro, LASH and SeaBee types
[1:24]

A sampling of some ships constructed in 1978 includes:

1. The 265,000-dwt crude oil tanker American Independence
2. The 125,000-cubic-meter liquified natural gas carriers

LNG Aries and LNG Capricorn

3. Four 164,000-dwt crude oil tankers
4. One 188,500-dwt crude oil tanker
5. One 26,600-dwt containership.

However, despite these gains in capital equipment, in 1979 only 4.1 percent of U.S. commercial shipping was carried in U.S. flag ships. [1:33] Tables 2 and 3 indicate the trends the U.S. Merchant Fleet has followed over recent years.

Overseeing the U.S. Merchant Marine are two federal agencies established by law since passage of the Merchant Marine Acts:

TABLE 2. MAJOR MERCHANT FLEETS OF THE WORLD - DECEMBER 31, 1978

COUNTRY	NO. SHIPS	RANK	DWT. (1,000)	RANK
Liberia	2,627	1	157,788,300	1
Japan	1,846	5	62,455,300	2
Norway	978	7	52,568,600	3
United Kingdom	1,377	6	51,105,500	4
Greece	2,379	3	49,825,000	5
Panama	2,041	4	31,250,500	6
France	415	13	20,815,100	7
U.S.S.R.	2,456	2	20,480,500	8
United States	584	10	18,982,000	9
Italy	601	8	18,565,000	10
Germany	592	9	14,664,400	11
Spain	479	12	12,195,200	12
Sweden	286	15	11,965,000	13
Singapore	574	11	11,889,800	14
India	363	14	8,890,600	15
All Others	6,509		100,235,200	-
TOTALS	24,096		641,308,500	

[1:32]

TABLE 3. U.S. OCEANBORNE FOREIGN TRADE/COMMERCIAL CARGO CARRIED

TONNAGE (Millions)										
CALENDAR YR.	1947	1948	1949	1950	1951	1952	1953	1954	1955	
TOTAL TONS	142.2	139.0	133.2	117.5	193.1	187.9	178.0	177.0	226.2	
U.S. FLAG TONS	81.9	67.0	60.3	49.7	76.8	64.4	51.7	48.7	53.1	
PERCENT OF TOTAL	57.6	48.2	45.2	42.3	39.8	34.3	29.1	27.5	23.5	
CALENDAR YR.	1956	1957	1958	1959	1960	1961	1962	1963	1964	
TOTAL TONS	260.1	289.3	253.3	267.0	277.9	272.4	296.8	311.6	332.8	
U.S. FLAG TONS	53.9	50.8	30.9	27.1	31.0	26.3	29.6	28.5	30.5	
PERCENT OF TOTAL	20.7	17.6	12.2	10.2	11.1	9.7	10.0	9.2	9.2	
CALENDAR YR.	1965	1966	1967	1968	1969	1970	1971	1972	1973	
TOTAL TONS	371.3	392.3	387.6	418.6	427.5	473.2	457.4	513.6	631.6	
U.S. FLAG TONS	27.7	26.2	20.5	25.0	19.8	25.2	24.4	23.8	39.9	
PERCENT OF TOTAL	7.5	6.7	5.3	6.0	4.6	5.3	5.3	4.6	6.3	
CALENDAR YR.	1974	1975	1976	1977	1978					
TOTAL TONS	628.9	615.6	698.8	775.3	777.0					
U.S. FLAG TONS	40.9	31.4	33.8	34.8	31.9					
PERCENT OF TOTAL	6.5	5.1	4.8	4.5	4.1					
[1:33]										

[1:33]

TABLE 3. (continued)
DOLLAR VALUE (\$Billions)

CALENDAR YEAR	1956	1957	1958	1959	1960	1961	1962	1963	1964
TOTAL VALUE	20.6	22.8	20.9	22.8	24.7	24.7	25.9	27.5	30.0
U.S. FLAG VALUE	7.0	7.3	6.0	6.0	6.5	6.3	6.5	6.9	7.7
PERCENT OF TOTAL	33.8	32.1	28.6	26.1	26.4	25.6	25.1	25.1	25.8
CALENDAR YEAR	1965	1966	1967	1968	1969	1970	1971	1972	1973
TOTAL VALUE	32.4	36.4	36.6	41.1	41.9	49.7	50.4	60.5	84.0
U.S. FLAG VALUE	6.9	8.2	7.9	8.5	8.1	10.3	9.9	11.1	15.9
PERCENT OF TOTAL	21.4	22.5	21.7	20.7	19.3	20.7	19.6	18.4	18.9
CALENDAR YEAR	1974	1975	1976	1977	1978				
TOTAL VALUE	124.2	127.5	148.4	171.2	195.8				
U.S. FLAG VALUE	22.0	22.4	26.4	28.0	30.7				
PERCENT OF TOTAL	17.7	17.5	17.8	16.4	15.7				

[1:33]

1. MARAD:

As an agency of the U.S. Department of Commerce since 1950, MARAD is tasked with the promotion of the U.S. Merchant Marine and America's private shipbuilding industry. To carry out this task, the organization provides financial aide for both shipbuilders and ship operators alike; sponsors research and development; promotes port development and growth; negotiates international agreements; operates the U.S. Merchant Marine Academy in New York; and maintains the NDRF located in various sectors of the country for wartime mobilization. [5:1]

The most visible aspect of MARAD's functions relate to the subsidies paid out annually in the interests of improving the maritime industry in the United States. From 1973 to 1978, these payments averaged \$500 million per year. [1:97]

2. Federal Maritime Commission

The Federal Maritime Commission (FMC) is an independent agency of Congress composed of five commissioners appointed by the President with the advice and consent of the Senate. The FMC carries out the following duties:

- a. Regulation of services, rates, practices, and agreements of common carriers by water;
- b. Acceptance or rejection of rates filed by carriers;
- c. Investigation of discriminatory practices;
- d. Licensing of independent ocean freight forwarders; and
- e. Rendering of decisions, issuing of orders, making rules and regulations governing and affecting common carriers

by water, terminal operators, freight forwarders, and other persons subject to the Commission's jurisdiction.

C. THE PROBLEM

The U.S. Merchant Marine has been called the "Fourth Arm of Defense," supposedly ready to integrate with the Army, Navy, and Air Force in times of conflict to protect U.S. interests overseas, and at the same time provide a continuing supply of raw materials at home.

In this nuclear age, when wars may be fought and won in hours, there are still strong possibilities that conventional long term wars will be fought. To support these conventional efforts, this thesis assumes, requires ships.

The U.S. Merchant Marine is at an all-time low in numbers of ships and despite the overall increase in tonnage, a case can be made for the idea that a reduction of vessels in the inventory has an effect on this country's flexibility to provide itself with adequate military support and industrial supplies in time of crisis.

There is already a heavy U.S. reliance on other flag ships since there are more than 1500 such ships currently working the American trade routes, while less than 300 U.S. flags operate the same routes. [7:13] The country would be at a distinct disadvantage were these 1500 foreign vessels suddenly diverted or cut off for some reason.

The situation becomes more critical when considering that, despite the existence of approximately 7500 ships under NATO flags, "almost all of the 250 ships currently plying foreign trade routes would be needed for just the first convoys sent to resupply NATO (including the U.S. Seventh Army and the U.S. Air Force in Europe) in the event of war with the Soviet Union and Warsaw Pact Allies." [8:15]

Also, both government and industry agree that the shipyards over the short term would not be able to duplicate previous wartime efforts. That leaves the U.S. in the position of "what is here is what will be available."

Table 4 provides a description of the fleet according to rough geographical utilization. The ships currently handling foreign trade and trade routes are generally equipped to continue in these roles. However, those ships engaged in domestic commerce would most likely require equipment and personnel changes and training to adapt them to the different conditions to be encountered in a trans-oceanic environment.

Assuming such limited availability and that a full mobilization is sounded, and that America will need every ship in the current inventory (500 plus), what are the steps involved in acquiring these boats and what roles could they possibly play in a total war? Chapter III will analyze these issues.

TABLE 4

EMPLOYMENT OF THE U.S.-FLAG OCEANGOING FLEET - SEPTEMBER 30, 1979

AREA OF EMPLOYMENT	TOTAL NO.	DWT (000)	COMB		CARGO		TANKERS	
			PASS/ NO.	CARGO DWT	NO.	DWT	NO.	DWT
FOREIGN TRADE:								
Nearby ¹	49	2,785	-	-	9	143	40	2,642
Overseas	199	5,281	4	37	180	3,533	15	1,711
TOTAL	248	8,066	4	37	189	3,676	55	4,353
Foreign to Foreign:	28	2,043	-	-	11	173	17	1,870
Domestic Trade:	122	3,473	-	-	8	120	114	3,353
Coastwise	86	4,156	-	-	32	477	54	3,679
Intercoastal	208	7,629	-	-	40	597	168	7,032
OTHER U.S. OPS:								
Misc. Charters and Temp. Lay-ups	93	1,210	8	38	58	527	27	645
GRAND TOTALS	577	18,948	12	75	298	4,973	267	13,900

¹Nearby foreign refers to Canada, Mexico, and Central America. [1:31]

III. ANALYSIS

A. GENERAL

In this chapter some analysis and discussion will be set forth regarding the mobilization and utilization of the Merchant Marine with respect to the following areas:

1. The procedures and priority systems to be adhered to in acquiring segments of merchant fleet for wartime use;
2. The relationship of the National Defense Reserve Fleet (NDRF) and The Military Sealift Command (MSC) in this process;
3. A discussion of the most recent large military use of merchant vessels - Vietnam;
4. A description of some of the vessels in the current inventory;
5. An examination of some sample missions merchant vessels might be available to perform as well as a discourse on recent tests of such capabilities by the military;
6. And finally a short description of "flags of convenience".

Based on the facts presented, the final chapter will deal with conclusions and recommendations.

B. SHIP PROCUREMENT

There are two major ways in which the government can obtain maritime assets for defense use in emergency situations. The method used depends on the gravity of the situation.

The first method is basically a commercial charter arrangement where the government hires out the vessels needed to perform particular support missions. The machinery to do this is already in effect since a large portion of Department of Defense (DOD) cargo is currently shipped on commercial bottoms. The authority for this is the Armed Services Procurement Act [9:20] which covers a whole range of commercial purchases and leases, not just ships. This Act established a system of advertising and bidding to be utilized in obtaining civilian services and materials for the government, and is one of the cornerstones of the government's procurement system.

Second, in times of emergency there are provisions inherent in the Act which allow for bypassing the formal bidding procedures. Any of the following reasons could be used as authority to skirt the normal system:

1. It is determined that such action is necessary in the public interest during a national emergency declared by Congress or the President;
2. The nature of the emergency or mobilization does not allow enough time for advertising; or
3. The nature of the needed property or service makes it impracticable to let a contract through advertised competitive bidding. [9:20]

Several types of contract options are available in the current system. Time charters are established to cover a ship and crew use for a specified period. Voyage charters are

arranged to use a vessel for a specific trip or trips. Bare-boat charters involve the use of the actual ship only; the leasor would provide the crew. There are, of course, variations within and among these different types of agreements.

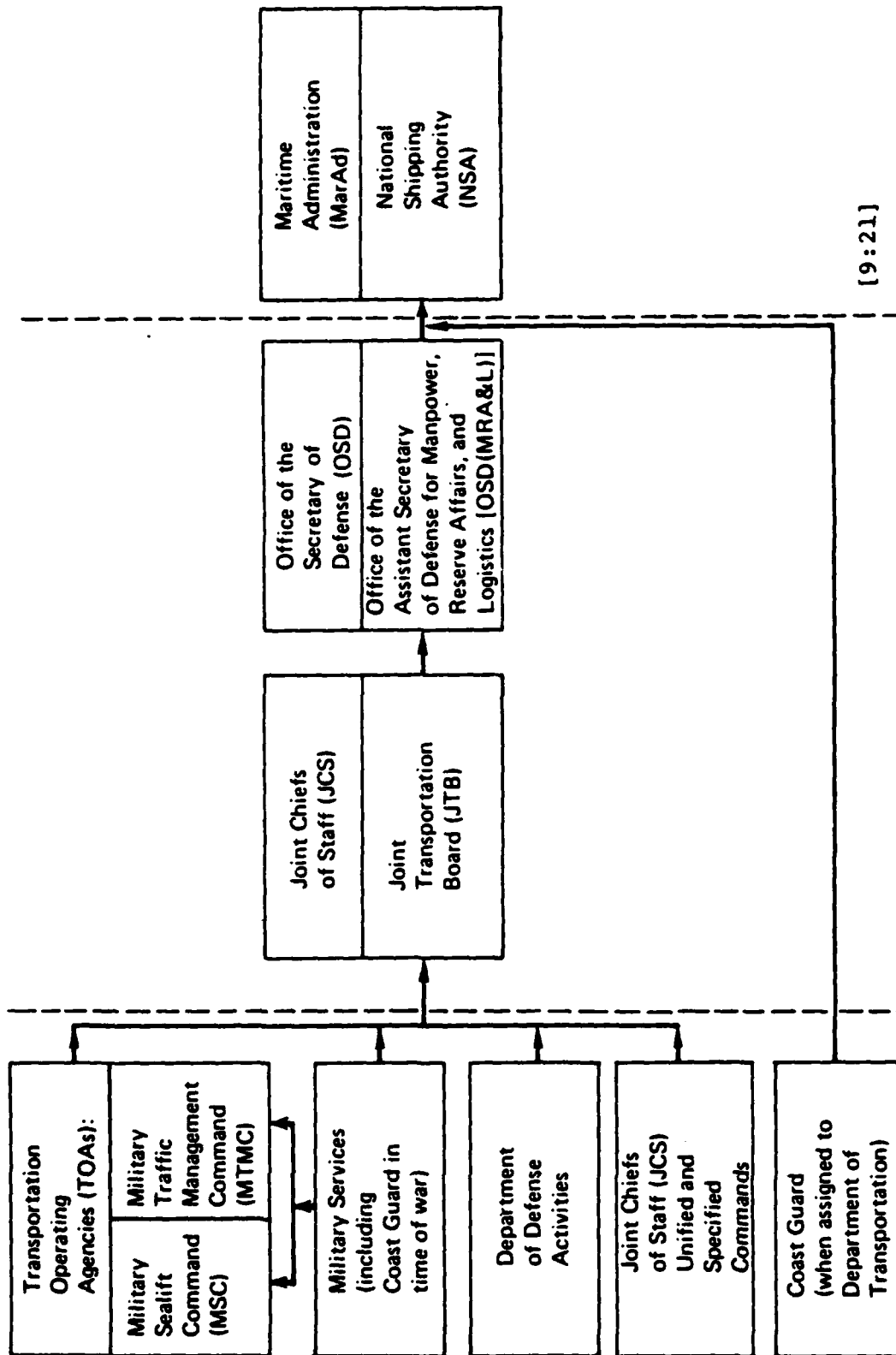
Although the Military Sealift Command would most likely make the arrangements in an emergency, any of several government agencies might be involved in acquiring maritime shipping to support some segment of the crises.

Where the contract system is inadequate, ships may be requisitioned. This may occur when private sector business is so great that the proper types and size of ships are not available. The use of this requisitioning procedure clearly depends upon the severity of the situation. The authority to requisition, which is to basically commandeer, is contained in the Merchant Marine Act of 1936:

... The Secretary of Commerce is authorized to requisition U.S.-owned vessels, whether registered under the U.S. flag or foreign flags, whenever the President proclaims that the security of the nation makes it advisable or during any national emergency declared by proclamation of the President.
[10: Sec 902]

Any one of a number of agencies could originate a requisition request. Figure 1 describes the requisitioning process. For example, the military services, the Coast Guard, MSC, Military Traffic Management Command (MTMC), or various DOD activities could all perceive a need for requisitioning.

FIGURE 1. VESSEL REQUISITIONING PROCESS



[9:21]

All requests would go to the Joint Chiefs of Staff (JCS) where, through a Joint Transportation Board (JTB), the request would be evaluated and matched against a large range of options monitored by JTB. If the requisition can be satisfied at that level, then there is no need to proceed to DOD.

However, in a true mobilization situation, the requirements would be apparent -- every facet of the government would be looking for shipping, and The Maritime Administration, in conjunction with the President, the Department of Commerce, and DOD, would have full authority to requisition whatever ships were needed.

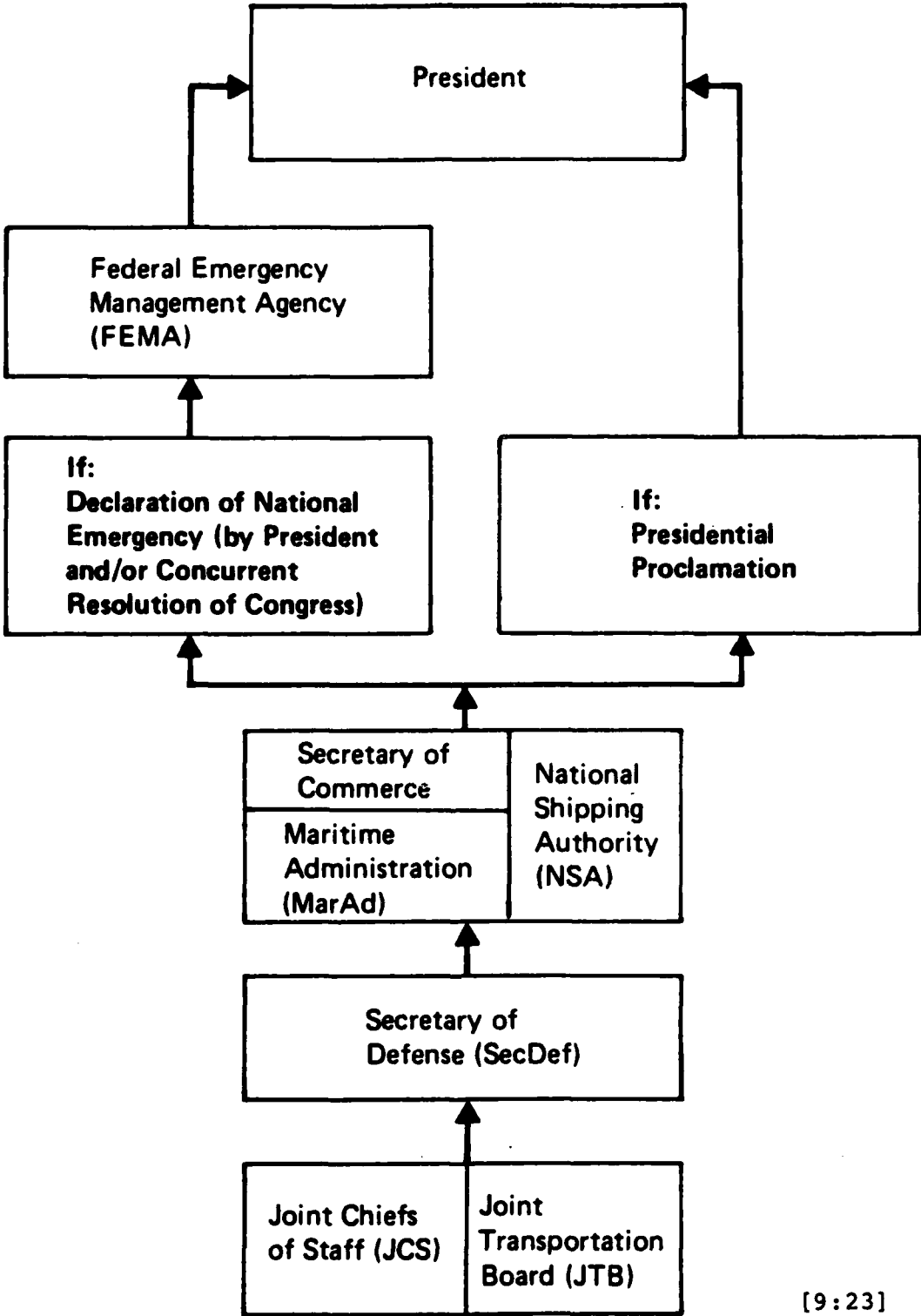
In a wartime situation, there will be many conflicts and much competition for existing ships. To resolve these potential difficulties, a system of priorities has been established based on the 1936 Merchant Marine Act and monitored by an organization under the President called the Federal Emergency Management Agency (FEMA). This staff arm of the Chief Executive "is responsible for determining policy for and coordinating the emergency plans and programs of transportation agencies and operations as well as those of other relevant federal agencies." [9:23] Basically, FEMA mediates conflicts over resources. Comprised of senior government military and civilian personnel, FEMA is the overseer of wartime shipping policy plus the arbiter in transportation disputes. These responsibilities are described at length in Executive Orders 11051 and 11490 plus amendments. [9:24]

Below FEMA is MARAD which, as the agency tasked with assigning specific vessels to particular organizations, has to make decisions on such grounds as "(a) national requirements, (b) essential military requirements, (c) foreign assistance, and (d) emergency procurement programs," [9:25] among others. MARAD would empower a special group called the National Shipping Authority (NSA) composed of experienced shipping industry personnel who would do the actual assignments. The authority for the NSA dates back to 1951 when the Department of Commerce first established the machinery to set it up. [11:145]

The Joint Chiefs of Staff and the Secretary of Defense, looking out for military needs, must set priorities, make allocations of military assets, and pass on to NSA requests for requirements not filled by DOD vessels. Figure 2 shows the hierarchy involved in this priority system.

In order to be able to requisition ships, the government first must determine if existing DOD assets are sufficient to cover the requirements of the situation. The first group of ships to be considered are those of the MSC. MSC provides sea transportation support on a regular basis for the Department of Defense. Maintaining a small fleet of 27 ships, six government owned and 21 chartered vessels, MSC is the initial source of sealift capability in an emergency. [3:1] MSC is also active in the overall development and coordination of contingency plans for expanded transportation requirements

FIGURE 2. HIERARCHY FOR RESOLVING PRIORITIES



during wartime by actively working with various DOD departments and agencies. These ships are constantly utilized in peacetime and would form the core of a much larger fleet required in wartime.

The next group of ships to be called upon would be regular civilian merchantmen through standard charter procedures. Should the MSC fleet be considered inadequate the government would turn to the hiring of commercial vessels, if available. The reasoning behind this facet of the procedure is for the United States (U.S.) to offer business to its own merchant fleet in order to support it before calling on the NDRF.

The NDRF is a fleet of 317 ships stored in three locations around the country for use in contingency situations. They are located in James River, Virginia (157); Beaumont, Texas (49); and Suisun Bay, California (111). [1:80] Table 5 shows the history of the NDRF since 1945.

Although these ships do exist, their number has generally been decreasing over the years primarily due to the sale, for scrap, of the World War II vintage members of the fleet. This has resulted in considerable speculation that the NDRF, the bulk of which is still over 25 years old, is inadequate in today's environment to be of much utility. Several reasons are given for this. First of all the age factor is most obvious since the ships are old, the technology is old and not many seamen are around anymore having the knowledge to operate

TABLE 5. NDRF, 1945-1979

Fiscal Year	No. Ships	Fiscal Year	No. Ships
1945	5	1962	1862
1946	1421	1963	1819
1947	1204	1964	1739
1948	1675	1965	1594
1949	1934	1966	1327
1950	2277	1967	1152
1951	1767	1968	1062
1952	1853	1969	1017
1953	1932	1970	1027
1954	2067	1971	860
1955	2068	1972	673
1956	2061	1973	541
1957	1889	1974	487
1958	2074	1975	419
1959	2060	1976	348
1960	2000	1977	333
1961	1923	1978	306
		1979	317

[1:83]

these ships. And, if there are such personnel available, they are most likely already gainfully employed and difficult to obtain for this purpose.

Regarding manpower deficiencies, when ships were broken out in support of the Vietnam war, there were shortages of skilled marine engineers and deck officers. As a result, in 1969, 135 NDRF sailings experienced a cumulative delay of 649 days or 4.8 days per ship. In 1967 and 1968 there were a total of 201 delayed sailings for an average of 3.4 days per ship. [12:12]

In 1979 a partially completed study entitled, "Licensed Officer Supply and Demand, 1979-1988", documented current existing labor shortages and forecasted that the situation would not improve in the future. Seafaring shipboard jobs in 1979 stood at 26,979, reflecting a downward trend, as compared to 53,880 in 1969. [1:73] [12:49] With the decrease in the job numbers, also comes a decrease in personnel with current experience.

It has also been stated that the current shipyards would be unable to handle a large influx of these ships which would almost certainly require yard services while gearing up.

Again, during Vietnam, activation of the NDRF took considerably longer than planned. The first 14 ships took 21 days each on the average, while the next 37 took 42 days. Shortages of parts, shipyard response capability, and the degraded condition of the ships contributed to these long

time frames. [13:42] Of the 172 total used in the war, 50 ultimately had to be scrapped, within two years of activation, indicating that the intense re-work did not prove adequate for anything but short term utilization. [12:31]

During the three primary buildup years of the Vietnamese conflict, 1965-1968, 172 NDRF ships transported in excess of 6,800,000 tons or 28 percent of all military cargo shipped to Southeast Asia. Commercial ships carried 15,400,000 tons or 65 percent and Military Sealift Command ships carried 1,700,000 tons or 7 percent. [12:6-10]

The number of commercial vessels involved during those three years was 166 dry cargo ships and 51 tankers. These were taken from a total fleet of over 900 eligible ships. The result of this was that these 200 ships were not engaged in the commercial market. Tables 3 and 4 reflect this decline in business those years. This decline represented business that ended up on foreign flag ships.

At the same time, the NDRF totalled more than 1100 ships. Since only 172 were withdrawn, it could be expected that those 172 were the best and that the others could be cannibalized to make them seaworthy. Given the problems involved with those actually put into service, today's inventory of about 300 ships greatly reduces the options regarding a sizable withdrawal.

Recognizing these problems, MARAD has recently made efforts to update the capability of the NDRF by selling off

the older ships and replacing them with more modern trade-ins from the commercial sector. This ongoing program, although not fully funded or supported has made some strides to keep the NDRF ready. Table 6 reflects the amounts of money that MARAD has allocated in the last several years for the preservation of the NDRF:

TABLE 6. NDRF BUDGET FIGURES 1972-1978

<u>FY</u>	<u>NDRF BUDGET</u>	<u>TOTAL MARAD BUDGET</u>	<u>PERCENT</u>
1972	\$4.3M	\$ 507.7M	.85
1973	3.9M	455.0M	.85
1974	3.7M	531.3M	.71
1975	4.3M	586.1M	.70
1976	4.2M	593.6M	.72
1977	4.5M	444.8M	1.06
1978	5.1M	549.2M	.94

[1:38]

In order to break ships out of the National Defense Reserve Fleet, several decisions have to be made involving DOD, the Navy and the Department of Commerce. The Merchant Ship Sales Act of 1946 provides the authority to withdraw ships from the NDRF, but only if the threat to requisition commercial shipping exists:

A vessel placed in such reserve shall in no case be used for any purpose whatsoever except that any such vessel may be used for account of any agency or department of the United States during any period in which vessels may be requisitioned under section 902 of the Merchant Marine Act of 1936. [10:93]

As stated, this means that activation cannot take place unless requisitioning appears imminent. The underlying principle behind this is that commercial shippers want all

the voluntary government business they can handle. Since the U.S. maritime industry has a poor competitive position worldwide, it looks to the government for business on a regular basis. Thus, the industry wishes to be fully utilized before allowing more ships to be pushed into the pool. And the government has adhered to policies geared to keep the merchant ships busy. For example, a public law passed in 1954, still in force, requires that 50 percent of all government cargo being shipped overseas be transported in U.S. bottoms. [11:145]

Furthermore, a document called the Wilson-Weeks Agreement, signed in 1954, between Secretary of Defense Charles E. Wilson and Secretary of Commerce, Sinclair Weeks, has as one of its purposes to prioritize the acquisition of sea assets and services. While recognizing the MSC controlled fleet, it also sought to protect commercial business. In part it states:

... The Department of Defense and the Department of Commerce agree that it is essential that DOD have under its exclusive custody, jurisdiction, and control, a nucleus fleet of size and composition to meet current requirements. All merchant shipping required by DOD, in addition to that provided by MSC, will be obtained ... in the following order of priority:

- (1) maximum utilization of available U.S. flag berth (regularly scheduled) space;
- (2) Time or voyage charters to the extent these are voluntarily made;
- (3) Breakout of the National Defense Reserve Fleet;
- (4) Use of foreign flags. [6:83]

This agreement is still in force today and is still adhered to by the government. In essence it dictates that the

U.S. government will make full use of merchant fleet assets before calling out the NDRF or resorting to foreign vessels.

The threat of requisitioning can only become real after all legitimate sources are explored. And then the priorities as established by the various emergency boards supersede any commercial arrangements.

Additionally a new concept called The Ready Reserve Force (RRF) has also been initiated. Started in 1977, this program was to provide a sealift capability of approximately 340,000 measurement tons (MTs) by Fiscal Year 1981, with these ships capable of activation within five to ten days for deployment during emergencies. [1:77] This time frame is far shorter than the 21-45 day window given for the regular NDRF, which itself is apparently optimistic given prior experience.

To provide this amount of tonnage would take approximately 30 ships, each with an average capacity of 15-20,000 MTs. At the end of 1979, MARAD had accumulated 13 ships in the RRF, a combination of ten breakbulk ships and three container ships. The RRF includes one Victory ship left over from WWII plus 12 other ships built in the 1960's by the commercial sector. After the program began these ships were accepted by MARAD as trade-ins on future construction. By shifting ships of a newer vintage into the NDRF and RRF, MARAD hopes to perpetuate this fleet as truly responsive. To test this system, two of these ships were activated by MSC in 1979 and completed 24-hour trials in less than seven days. [1:77]

C. SHIP TYPES

There are several different basic ship types in the merchant fleet which would be adaptable to a variety of needs and functions should they be called upon.

1. Breakbulk Ships

The trend of the 1970's has been away from the more traditional breakbulk ship with its large holds and its own on/off loading capability towards new ship types, particularly container ships, barge ships, and roll-on/roll-off (RO/RO) ships. However, figures projected into 1981 by MARAD commissioned study indicate that approximately half of the 270 cargo ships predicted to be in service will still be breakbulk ships. The other 135 will be a combination of container-ships, RO/RO's and barge carriers. [14:14] The breakbulk ship has the flexibility to deal with outsize cargo such as tanks, big guns, etc., plus the booms necessary to make them self-sustaining, i.e., needing nothing more than a dock on which to set materials. Although reliable, the cargo handling procedures of this ship type are relatively slow compared to the more modern ships, thus adversely affecting system turn-around time. A typical breakbulk ship would have dimensions similar to the following:

Length:	455 ft.
Beam:	60 ft.
Cargo Capacity:	12-15,000 measurement tons
Speed:	15-17 knots
Crew:	40-45

2. Container Ship

Container ships, capable of carrying cargo in pre-packaged metal containers (20 or 40 feet long by 8 feet high by 8 feet wide) similar to standard truck bodies, have come of age in the 1970's. Although lacking the flexibility to carry out-sized cargo, these ships make up in volume and handling speed what they may lack in adaptability. Generally they're of two types: Self-sustaining (SS), utilizing onboard crane facilities, or non-self sustaining (NSS), requiring elaborate shore support to offload. The trend is more towards the NSS type in today's commercial world. A typical container ship has the following dimensions:

Length:	650-700 feet
Beam:	90 feet
No. Boxes Carried:	1500-2000
Speed:	20-25 knots
Cargo Capacity:	30-35,000 tons

The holds of these ships consist of steel rails or guides from main deck to the bottom. The containers slide securely down the tracks sometimes stacking up to 11 high, depending on the ship.

3. RO/RO Ships

A new concept in shipping is that of the Roll on/Roll off (RO/RO) ship. Essentially floating barges, these ships can handle most anything on wheels and thus have

excellent military application. RO/RO's evolved from a combination of car ferries and WWII Landing Ship, Tanks (LST's).

Because the military is highly enthusiastic over their use, RO/RO's are now under study as an integral part of future wartime support. In fact MARAD recently added the 500 foot long ATLANTIC BEAR to the NDRF. [9:77] RO/RO's in service at present have characteristics similar to the following:

Length:	650-700 feet
Beam:	100 feet
Draft:	35 feet
Speed:	25 knots.

4. Barge Ships

In the current inventory of ships, the Lighter-aboard-ship (LASH) and the Sea Barge (SEABEE) have definite promise for future military use. Like the container ship, the main hull is essentially open for the carrying of barges and lighters which are pre-loaded, floated to the hull and lifted aboard with either a crane or elevator system.

These systems have several advantages. They load and unload fast, they can carry outsize loads, and they can stand offshore to accomplish their mission.

However, they still require some sort of power craft to move the barges from ship to shore.

LASH/SEABEE ships in service at present have the following characteristics:

Length:	800-850 feet
Beam:	100 ft
Draft:	25-30 ft
Speed:	20+ knots
Cargo Capacity:	20-25,000 tons.

D. SUPPORT MISSIONS

On a continuing basis, the U.S. Navy and MARAD have planned activities in which Navy vessels must interact with merchant ships. These exercises include wartime scenarios.

Examples of the areas in which Navy and MARAD seek to discover and solve problems include: 1. control of merchant ship convoys and routing by the Navy in time of war; 2. protection of merchant ships by Navy vessels; 3. deployment of military equipment on merchant ships; 4. communications interface between civilian and military ships; and, 5. amphibious support. Several specific missions have been the subject of intense study.

1. Refueling

Recognizing the need for fuel, the Navy in 1972 began a series of exercises called Charger Log during which civilian tankers provided on-station refueling of combat units. Supplementing the Navy oiler, the tankers performed two missions: one was delivering only to a Navy oiler which then refueled the smaller units; the other was actual refueling of all task force ships. This latter procedure resulted in the discovery

of several difficulties, due primarily to the technological differences between the merchant ship and its customers. Merchant ships are generally slower, causing a potentially dangerous situation should combat vessels have to slow down to refuel, thus increasing their vulnerability. Also civilian ships are not equipped for fast, efficient fuel delivery at sea. That is not their primary function. So any system changes made to allow fuel transfer are generally of a jury-rig nature and therefore do not realize the pumping rates required.

Civilian ships have other deficiencies such as lack of armaments and no place for them; and they have too little fire-fighting and damage control equipment. [15:I-4,5]

2. Supplies, Food and Ammunition

Providing supplies, food and ammunition to at-sea-units would be a definite requirement. The Navy Mobile Logistics Ships would need reprovisioning on a regular basis and, again, shore pickups may not be possible. Breakbulk ships would be the best source of this kind of support since they have rigging to transfer materials, and holds adaptable to specialized palletized items. With the shortage of breakbulk ships, the Navy has been considering the use of containerships for this purpose. Although considered feasible for point-to-point delivery, containerships have particular characteristics that do not lend themselves to the underway replenishment of Navy ships. Containers can be transferred by helicopter, but studies have shown them to be difficult to return to the

sending ship thus causing logjams on the receiving ship. Certain requirements may not need a whole container and most Navy ships do not have the capability to break the cargo down, move it around, and re-containerize it. Some missiles are too large for the vans and, further, there is only one ammunition port in the U.S., Sunny Point, N.C., equipped to load containers. [15:II]

3. Other Missions

In 1976 and 1977 two exercises called TEAMWORK 1976 and REFORGER 1977 were conducted both of which involved merchant ships in convoy situations plus tests of loading, transporting and unloading Army equipment in Europe.

In 1978 joint communications drills called ALPINE CHARGER and ROLL CALL were carried out between U.S. Navy, civilian merchant ships, and NATO forces.

And in October 1978, NIFTY NUGGET a giant exercise involving all facets of support for a major European war was also executed. [8:209]

Other recent tests have included OSDOC (Over the Shore Discharge of Containers) and LOTS (Logistics Over the Shore). In these tests, merchant ships including modern container ships and barges, were off loaded onto a beach totally lacking in any port facility. Using its own cranes and barge-mounted portables one breakbulk ship unloaded 600 tons of pile drivers, bulldozers, forklifts, landing craft, shelters, and amphibious vehicles. With this equipment the bare beach was improved to

accept 20 and 40 foot containers from another ship standing off shore. [7:7]

Tests such as OSDOC and LOTS have been described as "successful" by their planners. However, they have pointed up the need for specially constructed support gear to match up with the ships own equipment to effect offloading. There is at present not a large quantity of such gear available at specific points to be moved to offload sites. The military continues to expand these types of operations to attain more experience and visibility to obtain adequate funding to cover equipment deficiencies.

These and other tests continually conducted by MARAD, MSC, and the Navy help provide workable solutions to the problems of matching current merchant ship capabilities with military needs. Since the cost and planning dollars of these events are limited, more tests which could be useful, are not in fact feasible. By limiting the number of ships in such tests, a large part of the shipping industry is denied the training it may need. Only through reports and other published information can most merchantmen discover the information they might have to know in a crisis. [7:9]

The Maritime Administration, recognizing the problem of the interface between various industry and military segments in emergencies, is in the process of developing a detailed planning document covering all aspects of fleet operations. This is being accomplished with the aid and

cooperation of the Military Sealift Command, the Navy, and industry itself. [8:210]

As pointed up by several shipping executives before Congress in 1978, the issue of merchant marine support for the country in emergency situations is complex. While the operators struggle for survival in a highly competitive business, the government attempts to prepare them for use in contingencies. There is a natural reluctance toward this since, whenever a U.S. flag ship might be called upon to support DOD missions, some foreign flag would most likely step in to take the business vacated by the U.S. ships. Such business lost may never be recovered. This thought makes the owners wary of devoting too much time to military preparation. In fact, when civilian ships are used in various training exercises, the operators are well paid for just the above reason. Budget restrictions therefore limit the amount of joint training which can be accomplished.

E. FLAGS OF CONVENIENCE

A discussion of the U.S. Merchant Marine would not be complete without mention of a significant number of ships owned by Americans, but registered abroad, particularly in the countries of Liberia, Panama, and Honduras. Under the concept of "Effective United States Control" (EUSC), the owners of these ships enter into agreements with MARAD to make their vessels available in times of emergency. For

this agreement they are provided special insurance programs. As of 1977, 339 tankers, 102 bulk carriers, and 28 liners representing over 20 million deadweight tons, were designated as EUSC vessels. [1:71]

The EUSC was created as a result of the Neutrality Act of 1939 according to which, the United States could not transport military cargo to the Allies in American bottoms. To circumvent the law, the government encouraged American ship owners to transfer ships to the registries of friendly, neutral, foreign countries. The U.S. then continued to utilize these ships up to and during WWII.

Today, ship operators continue to maintain foreign registry due to the cheap foreign labor, less stringent safety requirements, and greater freedom from governmental regulation and interference.

While the flags of convenience represent a sizable force which by agreement may be used by the U.S. in crises, in reality, much controversy has been raised over the true availability of these vessels and the potential benefit they might serve. The EUSC fleet is scattered throughout the world and, therefore, control over such ships is very decentralized and weak. Additionally, this fleet is manned by multinational crews whose loyalties may be inconsistent with those of the U.S. and, hence, make these seamen unreliable.

Also, since most EUSC ships are not subject to American government and military inspection and not built in U.S. ship-

yards, their military value is difficult to determine at any given time.

And, finally, with the world situation that exists today, it is hard to predict with any real accuracy what the countries of registry themselves might do if counted on to cooperate with this country and provide this fleet. The EUSC exists, the ships are real and have the potential to be a potent force should the need arise. However, the actual acquisition of these assets may in fact not be possible.

F. CHAPTER SUMMARY

In order to mobilize the U.S. Merchant Marine in times of crisis, certain procedures and priorities involving all levels of government have to be followed. The authority to requisition exists but such a step must include consideration of both the NDRF and the MSC fleet.

Once the wheels are set in motion, the actual ship types available and the kinds of missions they might perform need to be looked at. To obtain the maximum utility from existing ship assets, the Navy in conjunction with MARAD, runs assorted tests of the ships and how they interact with Navy vessels.

Based on the above discussion the next chapter will describe various conclusions and recommendations in order to improve the present situation.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. GENERAL

As seen in the last chapter, problems do exist concerning a wartime mobilization of the U.S. Merchant Marine. The discussion of those particular problems leads to the conclusions and recommendations that follow.

B. CONCLUSIONS

There is a need for a strong merchant marine not only for the reliable transportation of American commerce, but also for utilization in support roles in wartime. With the United States (U.S.) able to carry less than five percent of its own materials on its own ships, it could be potentially very dangerous in times of emergency if the U.S. had to depend on other countries to continue to transport U.S. goods as they do now.

Additionally, since the U.S. does not have a reputation for stockpiling raw materials, import missions bringing in such raw materials as oil and a variety of metals necessary to support wartime production levels would likely increase. These increases would strain the merchant fleet and add to the competition for available vessels with military planners.

While the Military Sealift Command (MSC) controlled fleet and the National Defense Reserve Force (NDRF) could be called upon, in an all out war requiring immediate response, these

two fleets would be inadequate. The NDRF would be inadequate due to time delays in activation and manpower shortages once on line, and the MSC fleet because of its small size. Consequently, the U.S. merchant fleet would have to be called upon.

It is difficult to say just how many ships should be in the inventory to cover contingencies currently facing the U.S. and its allies such as an invasion of Europe or a flare-up in the Middle East.

Such statements as indicated in Chapter IV that "all 250 ocean going dry cargo ships would be needed in the first few months for a European resupply" give some indication, especially if some factor for wartime attrition is figured.

Looking at almost 300 ships working constantly over three years to resupply Vietnam also generates feelings of inadequacy about the U.S. merchant fleet.

With the present U.S. commitments around the globe, a fleet of 577 ships carrying only five percent of U.S. commerce cannot be considered as a potent force in a total mobilization situation.

As for ships in current construction programs, too little is being spent to prepare them for contingencies. A \$35 million ship constructed under subsidy may get a \$50 thousand defense package which usually means some deck strengthening to accommodate a crane or non-self sustaining container ships, or a small landing platform for helicopters. This is far too little compared to the early 1960's when defense features

included nuclear water washdown systems, extra generators and fresh water capability, and weapons platforms. [8:227]

A number of government agencies, such as the Departments of Commerce and Defense, the Maritime Administration (MARAD) and the Navy have called for a coordinated national shipping and shipbuilding policy. Despite the interest of such activities, and despite the Merchant Marine Act of 1970, no such coordination exists. What does exist are fragmented procedures and parochial interests which, to date, have not been unified into one common plan. For example, the 1970 Act had in mind a consistent, steady shipbuilding policy over the decade of the 1970's. However, despite a good start when 48 ship construction contracts were let in 1972 and 43 in 1973, in 1975 only 14 vessels were contracted for while in 1976 only 13 were. [8:320]

Further indications of disparity among goals between various merchant marine related factions can be seen in this testimony before Congress by a member of MARAD.

... the failure of the current maritime program to provide an adequate and well balanced U.S. flag fleet is attributable to the fact that the commercial market for U.S. flag ships had generated a fleet inadequate for national security needs. For instance our bulk fleet can carry only a small fraction of essential U.S. imports and the liner fleet has only a small number of the roll-on/roll-off ships which are the most desirable for support of military deployments. [8:200]

In summary the following conclusions may be drawn from the study presented:

1. The United States needs a strong, capable merchant fleet which at present does not exist in those terms;
2. The NDRF and the MSC controlled fleets are inadequate to handle the quick surge in shipping produced by all-out mobilization;
3. There is no coordinated transportation policy in the United States regarding the shipping industry.

C. RECOMMENDATIONS

The United States (U.S.) Merchant Marine has been in a continual state of decline regarding its size and the amount of tonnage carried since World War II. To bring it back to the forefront of world fleets, able to support the U.S. in both peace and war, new policies have to be instigated. Programs of massive subsidies have not kept the merchant fleet from shrinking. Several strategies are suggested which might alleviate the current situation.

1. Overseas Purchase of Vessels

One way to solve the problem would be to give more owners the freedom to purchase vessels overseas. As an example, in February 1980, Sea-Land Service, Inc., the world's largest container carrier and frontrunner in the container ship revolution, began service with a brand new ship, the first of 12 to be produced in Japan. Powered by fuel-efficient diesel engines, products of advanced Japanese technology, and delivered far faster than a U.S. yard would, these 744 feet long, \$35 million

ships are designed to compete with the flag ships of other countries for the bulk of U.S. trade, which is carried by these other flags. Because Sea-Land is not subsidized by the government it was not required to build its ships in American yards as subsidized lines are. [16:58]

Ships such as this will add greatly to the competitive position of the U.S. plus offer better options for defense planners. It is recognized that reducing domestic purchases would have a negative impact on U.S. shipyards especially with the recent Navy cutbacks, which leads to the next recommendation.

2. Coordinated Shipping and Shipbuilding Program

The United States needs a national, coordinated civilian and military program to obtain the best ships, while maintaining shipyard capacity for future contingencies. Existing legislation requiring American cargo to be carried on American bottoms needs to be updated and tailored to the times. While it was passed to benefit the building industry, it has hampered the technological growth of the fleet. An overall program needs to be established to move both industries forward instead of protecting one while hurting the other.

3. Agency Interaction

The various governmental agencies, DOC, DOD, MARAD, the Navy, and Congress must maintain a constant dialogue in order to highlight deficiencies and work on solutions.

Parochial interests stimulated by budget constraints need to be eliminated regarding the Merchant Marine.

4. Legislation

And lastly, procedures that are defined only by memorandums of agreement as opposed to statute cannot be totally relied upon. The current maritime organization has several flaws in this area that need to be formalized Congressional legislation. For example, the Wilson-Weeks Memorandum may not stand a legal test in a crisis. The fact that it is over twenty years old may indicate need to be replaced through formal legislation.

5. Further Study

In conclusion, the problems associated with the Merchant Marine require continuing attention and study. New technologies and innovations need to be developed and explored. Increased emphasis on the relationship between the Merchant Marine and the Navy must take place. And, finally, all members of the United States government involved in this area must work together for common goals, to ensure that the U.S. has an adequate Merchant Marine.

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