MARAD '90

The Annual Report of the Maritime Administration for Fiscal Year 1990

U.S. Department of Transportation
Maritime Administration

April 1991

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

March 28, 1991

The Honorable Dan Quayle
President of the Senate
Washington, DC 20510

The Honorable Thomas S. Foley
Speaker of the House of
Representatives
Washington, DC 20515

Dear Sirs:

I have the pleasure of forwarding to you the annual report of the Maritime Administration for fiscal year 1990 as required by the Merchant Marine Act, 1936, as amended.

Sincerely,

Samuel K. Skinner

Samuel K. Skinner

Enclosure

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FOREWORD

The Annual Report of the Maritime Administration (MARAD) for the fiscal year which ended on September 30, 1990, is submitted to the Congress in accordance with Section 208 of the Merchant Marine Act, 1936, as amended.

It incorporates reports required by the Congress on the following topics: acquisition of obsolete vessels in exchange for vessel trade-in credit; war-risk insurance activities; scrapping or removal of obsolete vessels owned by the United States; and U.S-flag carriage of Government-sponsored cargoes.

The National Transportation Policy (NTP) released by the President on March 8, 1990, addressed the collective transportation industry. Among its maritime-related conclusions was one which stressed that "The ability of the U.S. civilian transportation system to support military sealift is a significant concern for national defense transportation." Implementation of the NTP began immediately and was ongoing at the end of the reporting period.

On August 10, 1990, the Military Sealift Command requested priority activation of all 17 roll-on/roll-off ships in the Ready Reserve Force (RRF) to support deployment of U.S. forces to the Persian Gulf in Operation DESERT SHIELD. Forty-four RRF and 2 aviation logistic support vessels had been ordered activated by September 30, 1990 and had been turned over to the Navy's operational control. The marshalling of sealift resources to participate in Operation DESERT SHIELD supported the largest buildup of U.S. forces since the Vietnam war.

During FY 1990, MARAD approved the requests of four bulk vessel operators receiving Operating-Differential Subsidy to permit additional vessels to become subsidized under the existing subsidy contracts within the limits of subsidy funding of those contracts.

MARAD also published proposed amendments to interim final rules published the previous fiscal year implementing significant statutory changes in the Ship Mortgage Act of 1920, as amended; final regulations implementing statutory changes to the Capital Construction Fund; final regulations regarding surveys and administration of ship maintenance and repair subsidies; and final regulations regarding hearings and proceedings required to be conducted under certain sections of the Merchant Marine Act, 1936, as amended.

A 5-year U.S.-U.S.S.R. Bilateral Maritime Agreement, which will facilitate development of bilateral and international trade by providing for easier movement of ships and goods between the two countries, became effective on October 1, 1990.

No new commercial vessels of 1,000 gross tons or larger were delivered by U.S. shipyards during FY 1990. U.S. commercial shipyards continued to be awarded all of the U.S. Navy's new construction contracts in fiscal year 1990.

CAPTAIN WARREN G. LEBACK
Maritime Administrator

Cargo, bound for Operation DESERT SHIELD, being loaded on the crane ship EQUALITY STATE. (*Photo: Military Sealift Command)*

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The T-ship procurement program includes maritime prepositioning ships, fast sealift ships, fleet oilers, auxiliary crane ships, ocean surveillance ships, survey ships and hospital ships. Vessels in this program are mission-oriented and designed to perform a specific primary service such as underway refueling or offloading other ships which do not possess self-unloading capability.

No new commercial vessels of 1,000 gross tons or larger were delivered by U.S. shipyards during FY 1990.

In January 1990, National Steel and Shipbuilding Co. (NASSCO) of San Diego, CA, received the first oceangoing commercial ship order placed with a U.S. shipyard since October 1984. The 713-foot, 23,314-deadweight ton, diesel-powered containership, designed to carry 1,650 24-foot containers, was ordered by Matson Navigation Co. for delivery in June 1992.

In February 1990, Edison Chouest Offshore, Inc. of Galliano, LA, was awarded a contract to provide an icebreaking research and support vessel to serve the National Science Foundation operations in Antarctica. Under this contract, Edison Chouest will construct, charter, and operate the vessel, which is scheduled for completion in February 1992.

Auxiliary Crane Ship (T-ACS) Program

The Auxiliary Crane Ship (T-ACS) Program provides a means of off-loading cargo from non-self-sustaining containerships at anchor offshore or in damaged or undeveloped ports. Existing commercial containerships are converted to craneships by installing large heavy-duty cranes on deck to off-load not only their own cargo but also cargo from ships positioned alongside.

Under a 1982 Memorandum of Understanding (MOU) between the Navy and MARAD, the Agency manages crane ship reactivation and conversion projects. T-ACS 1 through 9 have been redelivered to MARAD. The T-ACS 10 contract awarded on January 27, 1989, to NORSHIPCO was terminated during FY 1990, for the convenience of the Government, due to a lack of funds. When funding becomes available, a new contract for T-ACS 10 completion is expected to be awarded. Contracts for T-ACS 11 and 12 are expected to be awarded in FY 1992 and FY 1993, respectively. Table 1 shows scheduled T-ACS deliveries.

MARAD currently maintains T-ACS 1 through 9 in the Ready Reserve Force (RRF) Program in 5-day activation status. The vessels are located in several East, Gulf, and West Coast ports to facilitate rapid activations. Several of the T-ACS vessels have small retention crews aboard to provide a cadre of civilian merchant mariners with the expertise to troubleshoot and maintain the vessels' crane systems. MARAD's T-ACS ships have successfully participated in numerous military Logistics Over The Shore (LOTS) amphibious exercises, as well as Operation DESERT SHIELD. (See Chapter 8.)

Chapter 1

Shipbuilding and Ship Conversion

Shipyard Activity

During fiscal year 1990, U.S. commercial shipyards were awarded all of the U.S. Navy's new construction contracts. These Navy ship construction projects continued to dominate the workload in U.S. shipyards. Since last year, 13 new Navy vessels of 1,000 light displacement tons (LDT) and larger were ordered from U.S. private shipyards. Fourteen new Navy vessels and two new Coast Guard medium endurance cutters were delivered during the period.

Navy vessels of 1,000 LDT and over, under construction, being converted or on order as of September 30, 1990, included 90 new ships and 6 vessels undergoing major conversion in 12 privately owned U.S. shipyards. In addition, six Coast Guard high-endurance cutters were being modernized at two shipyards.

A significant portion of the Navy's ship construction and conversion program is devoted to "T ships." The prefix "T" designates civilian-manned ships, both Government-owned and privately owned, operated by or under charter to the Military Sealift Command (MSC). As of September 30, 1990, 18 new T-ships were on order or under construction in four privately owned shipyards and one T-ship was undergoing a major conversion in another shipyard. Also in FY 1990, four new T-Ships and one conversion were completed and one new T-Ship order was placed with a U.S. shipyard.

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Schoolship Conversion

The conversion of the National Defense Reserve Fleet vessel MORMACTIDE was completed by Bay Shipbuilding Corp., Sturgeon Bay, WI, in FY 1990. The vessel was reactivated for use as a training ship under Title XIII of the Merchant Marine Act of 1936. The new EMPIRE STATE, which is berthed at The State of New York Maritime College, accommodates 800 cadets in training for positions as licensed marine engineers and deck officers, as well as faculty, and ship operating officers and crew. Through financial assistance provided by the Department of Defense, the ship also can be converted to a troopship with an estimated complement of 2,400.

Also during the year, MARAD was investigating designs for using portable living, classroom, and support modules installed in existing cargo ships to provide a schoolship for the smaller State maritime colleges with 200-250 cadets.

Title XI Guarantees

Title XI of the Merchant Marine Act, 1936, as amended, established the Federal Ship Financing Guarantee Program. As originally enacted, Title XI authorized the Federal Government to insure private-sector loans or mortgages made to finance or refinance the construction or reconstruction of American-flag vessels.

Title XI was amended in 1972 to provide direct Government guarantees of the underlying debt obligations, with the Government holding a mortgage on the equipment financed.

The U.S. Government guarantees full payment to the lender of the unpaid principal and interest of the mortgage obligation in the event of default by the vessel owners.

As of September 30, 1990, Title XI guarantees in force aggregated approximately $3 billion, covering approximately 2,776 vessels and 189 individual shipowners. (See Table 3.)

During FY 1990, Congressional authority for the Title XI program had a cap of $12 billion, with $9.5 billion allocated to MARAD, $1.65 billion reserved for ocean thermal energy conversion vessels and facilities, and $850 million authorized to guarantee the financing of fishing vessels by the National Oceanic and Atmospheric Administration.

The insurance premiums and guarantees fees paid by users go into the Federal Ship Financing Fund, a revolving fund which is used for payment of expenses of the program, including defaults. During this reporting period, there were 6 defaults on Title XI guaranteed contracts.

As of September 30, 1990, the Federal Ship Financing Fund had $537.7 million in combined cash and investments. The Fund incurred and paid out $138.7 million in mortgage defaults during FY 1990; no borrowing from the U.S. Treasury was necessary to cover these defaults.

During FY 1990, the Fund had an increase of $130 million in cash and investments.

Capital Construction Fund

The Capital Construction Fund (CCF) Program was established under the Merchant Marine Act of 1970. It assists operators in accumulating capital to build, acquire, and reconstruct vessels through the deferral of Federal income taxes on certain deposits, as defined in Section 607 of the Merchant Marine Act, 1936, as amended.

The CCF Program enables operators to build vessels for the U.S. foreign trade, Great Lakes, noncontiguous domestic trade (e.g., between the West Coast and Hawaii), and the fisheries of the United States. It aids in the construction, reconstruction, or acquisition of a wide variety of vessels, including containerships, tankers, bulk carriers, tugs, barges, supply vessels, ferries and passenger vessels.

During calendar year 1989, $89 million was deposited into these accounts. Since the program was initiated in 1971, fundholders have deposited $5.2 billion in CCF accounts and withdrawn $3.9 billion for the modernization and expansion of the U.S. merchant marine. As of December 31, 1989, a total of 86 companies were parties to CCF agreements. (See Table 4.)

Construction Reserve Fund

Like the Capital Construction Fund, the Construction Reserve Fund (CRF) encourages upgrading of the American-flag fleet. This program allows eligible parties to defer taxation of capital gains on the sale or other disposition of a vessel if net proceeds are placed in a CRF and reinvested in a new vessel within 3 years.

The CRF is used predominately by owners of vessels operated in coastwise trades, the inland

waterways, and other trades not eligible for the CCF Program. Its benefits are not as broad as those of the CCF.

The number of companies with CRF balances decreased to six during the 1990 fiscal year. (See Table 5.) The total monies on deposit decreased from $4.8 million to $.5 million.

Shipyard Improvements

The U.S. ship construction and ship repair industry invested more that $209 million in FY 1990 to upgrade and expand facilities. Much of this investment went to improve efficiency and competitiveness for future participation in the Navy's construction, repair, and overhaul projects. Information received by MARAD indicates that U.S. shipyards plan to spend about $91 million in FY 1991. The industry's capital investments since 1970 have totaled $4.6 billion.

Table 1: AUXILIARY CRANE SHIP PROGRAM STATUS

Vessels	Shipyard	Redelivery[1]
T-ACS 1 KEYSTONE STATE	Bay Shipbuilding	05/07/84
T-ACS 2 GEM STATE	Continental Maritime	10/31/85
T-ACS 3 GRAND CANYON STATE	Dillingham	10/27/86
T-ACS 4 GOPHER STATE	NORSHIPCO	10/27/87
T-ACS 5 FLICKERTAIL STATE	NORSHIPCO	02/08/88
T-ACS 6 CORNHUSKER STATE	NORSHIPCO	04/12/88
T-ACS 7 DIAMOND STATE	Tampa Shipyards	02/22/89
T-ACS 8 EQUALITY STATE	Tampa Shipyards	05/23/89
T-ACS 9 GREEN MOUNTAIN STATE	NORSHIPCO	09/24/90
T-ACS 10 BEAVER STATE[2]	(To Be Determined)	(1992)
T-ACS 11 (To Be Determined)	(To Be Determined)	(1993)
T-ACS 12 (To Be Determined)	(To Be Determined)	(1994)

[1] Dates in parenthesis indicate planned dates, others are actual dates.

[2] T-ACS 10 contract with NORSHIPCO was terminated and could be re-bid (pending funding) during FY 1991 for completion of the conversion.

Table 2: WORLDWIDE SHIP DELIVERIES - CALENDAR YEAR 1989 (TONNAGE IN THOUSANDS)

Country of Construction	Total All Types No.	Total All Types Deadweight Tons	Combination Pass. & Cargo No.	Combination Pass. & Cargo Deadweight Tons	Freighters No.	Freighters Deadweight Tons	Bulk No.	Bulk Deadweight Tons	Tankers No.	Tankers Deadweight Tons
Total	**372**	**14,283.2**	**6**	**34.4**	**152**	**1,992.0**	**93**	**5,732.3**	**121**	**6542.5**
United States	-	-	-	-	-	-	-	-	-	-
Argentina	2	88.6	-	-	1	24.4	1	64.2	-	-
Belgium	1	29.2	-	-	-	-	-	-	1	29.2
Brazil	2	200.8	-	-	-	-	1	170.0	1	30.8
Bulgaria	10	109.1	-	-	3	22.4	1	40.3	6	46.4
China	11	276.6	-	-	7	70.5	3	143.8	1	62.3
Denmark	12	353.5	-	-	10	200.0	-	-	2	153.5
Finland	5	11.7	1	0.6	-	-	-	-	4	11.1
France	1	7.5	1	7.5	-	-	-	-	-	-
Germany (East)	6	96.0	-	-	6	96.0	-	-	-	-
Germany (West)	23	381.7	-	-	19	331.9	-	-	4	49.8
Greece	1	3.8	-	-	1	3.8	-	-	-	-
India	3	130.3	-	-	-	-	3	130.3	-	-
Indonesia	1	3.5	-	-	-	-	-	-	1	3.5
Italy	10	255.5	1	19.1	7	94.2	1	135.0	1	7.2
Japan	174	6,730.5	2	5.4	61	671.6	63	3,401.6	48	2,651.9
Korea (South)	38	3,271.2	-	-	8	160.1	8	625.7	22	2,485.4
Malta	1	7.7	-	-	1	7.7	-	-	-	-
Mexico	2	67.3	-	-	-	-	1	22.0	1	45.3
Netherlands	12	55.7	-	-	7	34.5	-	-	5	21.2
Norway	2	12.2	-	-	2	12.2	-	-	-	-
Poland	8	155.7	-	-	5	59.4	2	63.3	1	30.0
Romania	10	453.0	-	-	3	32.4	4	237.2	5	183.4
Singapore	6	21.2	-	-	2	4.3	-	-	4	16.9
Spain	5	160.6	1	1.8	1	10.0	-	-	3	148.8
Taiwan	7	663.1	-	-	2	80.0	5	583.1	-	-
Turkey	1	3.3	-	-	1	3.3	-	-	-	-
U.A.R. (Egypt)	2	6.1	-	-	2	6.1	-	-	-	-
U.S.S.R.	2	57.2	-	-	-	-	-	-	2	57.2
United Kingdom	3	51.4	-	-	1	46.0	-	-	2	5.4
Yugoslavia	11	619.2	-	-	2	21.2	2	112.8	7	485.2

Table 3: FEDERAL SHIP FINANCING GUARANTEE (TITLE XI) PROGRAM SUMMARY
Principal Liability (Statutory Limit $9.5 Billion) on September 30, 1990

	Contracts in Force	
	Vessels Covered	**Outstanding Amount**
Coastal	205	$ 357,850,595
Bulk	88	1,827,191,598
Drill Rig	16	114,299,848
Drill Supply	43	51,624,612
Inland	1,690	202,487,610
Liner	716[1]	237,969,531
Other	18	222,163,915
Totals[2]	**2,776**	**$3,013,587,708**

[1] Includes 682 LASH barges.
[2] Includes cruise vessels, dredging vessels, crane barges, pipe-laying barges.

Table 4: CAPITAL CONSTRUCTION FUND HOLDERS -- December 31, 1990

Alaska Riverways, Inc.
Amak Towing Co., Inc.
AMC Boats, Inc.
American President Lines, Ltd.
American Shipping, Inc.
Andover Co., L.P.
Aquarius Marine Co.
Atlantic Richfield Co.
Atlas Marine Co.
Bankers Trust New York Corp.
Bethlehem Steel Corp.
Binkley Co., The
Blue Lines, Inc.
Brice, Inc.
C & E Boat Rentals Inc.
Campbell Towing Co.
Cement Transit Co.
Central Gulf Lines, Inc.
Citimarlease (Burmah I), Inc.
Citimarlease (Burmah LNG Carriers), Inc.
Citimarlease (Burmah Liquegas), Inc.
Citimarlease (Fulton), Inc.
Citimarlease (Whitney), Inc.
Cowan Towing & Salvage Co.
Crowley Maritime Corp.
Durocher Dock & Dredge
Edison Chouest Offshore, Inc.
Edward E. Gillen Co.
Eserman Offshore Service, Inc.
Exxon Shipping Corp.
Falcon Alpha Shipping, Inc.
Falcon Capital, Inc.
Farrell Lines, Inc.
Foss Maritime Co.
Fred Devine Diving & Salvage, Inc.
G&B Marine Transportation, Inc.
GATX Corp.
General Electric Credit and Leasing Corp.
General Electric Credit Corp. of Delaware
General Electric Credit Corp. of Georgia
Gilco Supply Boats, Inc.
Great Lakes Towing Co.
Hannah Brothers
Hannah Marine Corp.
Hawaiian Electric Indus.
Hvide Shipping, Inc.
Inland Steel Co.
Inter-Cities Navigation Corp.
Interstate Towing Co.
John E. Graham & Sons
Kinsman Lines, Inc.
L&L Marine Services, Inc.
Leppaluoto Offshore Marine, Inc.
Lykes Bros. Steamship Co.
Madeline Island Ferry Lines, Inc.
Marine Investment Co. of Delaware (Sun Co.)
Matson Navigation Co., Inc.
Middle Rock, Inc.
Miller Boat Lines, Inc.
Moody Offshore, Inc.
National Steel and Shipbuilding Co.
Neuman Boat Lines, Inc.
Nicor, Inc.
North American Boat Rentals, Inc.
Oceanic Research Services, Inc.
O.L. Schmidt Barge Lines, Inc.
Ocean Shipholdings, Inc.
Oglebay Norton Co.
OMI Corp.
Overseas Shipholding Group, Inc.
Pacific Hawaiian Lines, Inc.
Ritchie Transportation Co.
Sause Bros. Inc.
Seabulk Tankers, Ltd.
Sea-Land Corp.
Sheplers, Inc.
Silver Bay Logging Construction Co.
State Boat Corp. Steel Style Marine
Totem Resources Corp.
Union Oil Co. of California
Waterman Steamship Corp.
Waveland Marine Services, Inc.
Western Pioneer, Inc.
Windjammer Cruises, Inc.
Y & S Marine, Inc.

Table 5: CONSTRUCTION RESERVE FUND HOLDERS--September 30, 1990

Cargill Marine and Terminal, Inc.
Central Gulf Steamship Corp.
Ingram Industries, Inc.
Mobil Oil Corp.
Montauk Oil Transportation Corp.
Serodino, Inc.

Chapter 2

Ship Operations

U.S. Fleet Profile

On September 30, 1990, the U.S.-flag, privately owned, deep-draft merchant fleet (including the Great Lakes fleet shown in Table 14) totaled 484 vessels with an aggregate carrying capacity of about 22.6 million deadweight tons (dwt.).

The oceangoing segment of the privately owned fleet comprised 406 vessels of 20.5 million dwt., of which 368 ships of 17.3 million dwt. were active. The latter comprised 38 breakbulk cargo ships, 122 intermodal vessels (containerships, barge-carrying vessels, and roll-on/roll-off vanships known as RO/ROs), 2 combination passenger-cargo ships, 184 tankers (including liquefied natural gas carriers), and 22 bulk carriers. (See Table 6.) All 38 of the inactive vessels were laid up.

Employment of the U.S.-flag oceangoing fleet (including Government-owned ships) at the end of the fiscal year is shown in Table 7.

On January 1, 1990, the privately owned American-flag merchant fleet ranked 9th in the world on a dwt. basis and 14th in the number of ships. (See Table 8.)

In calendar year 1989, commercial cargoes carried by ships of all flags in the U.S. oceanborne foreign trade totaled 836.3 million tons. U.S.-flag foreign trade tonnage increased from 30.7 million tons in 1988 to 36.4 million tons in 1989 and the U.S.-flag share of total tonnage increased from 3.9 percent in 1988 to 4.4 percent in 1989.

Commercial cargoes transported in U.S. oceanborne foreign trade from 1980 through calendar year 1989 are shown in Table 9. The table shows the total trade by tonnage and value, and the portion carried by U.S.-flag vessels.

Operating-Differential Subsidy

U.S.-flag vessels which operate in essential foreign trade (routes or areas determined to be essential for promoting, developing, expanding, and maintaining U.S. foreign commerce) are eligible for operating-differential subsidy (ODS) which is administered by the Maritime Administration (MARAD). ODS is designed to offset certain lower ship operating costs of foreign-flag competitors. Net subsidy outlays during FY 1990 amounted to $231 million.

Approximately $0.5 million in subsidy was paid for one voyage by Lykes Bros. Steamship Co., Inc. (Lykes) in the Great Lakes trade during fiscal year 1990.

ODS accruals and outlays from January 1, 1937, through September 30, 1990, are summarized by year in Table 10. Accruals and outlays by shipping lines for the same period are shown in Table 11. ODS contracts in force are shown in Table 12.

Section 614 Activities

Section 614 of the Merchant Marine Act, 1936, as amended, permits a company receiving ODS funds to elect to suspend its ODS agreement for all or a portion of its vessels, subject to certain conditions. Suspension of the ODS agreement includes suspending all attendant statutory and contractual restrictions in the ODS agreement, except those pertaining to operation in the domestic trade.

No vessels operated under suspended ODS agreements in FY 1990.

Subsidy Rates

The Subsidy Index System was established by the Merchant Marine Act of 1970. It provides for payment of seafaring wage subsidies in per diem amounts. The rate of change in the index is computed annually by the Bureau of Labor Statistics and is used as the measure of change in seafaring employment costs.

ODS rates also are calculated for maintenance and repairs, hull and machinery insurance, and protection and indemnity insurance for both premiums and deductibles.

MARAD has substantially completed all 1990 subsidy rates applicable to both liner vessel operations and bulk vessel operations.

Passenger/Cruise Service

U.S.-flag oceangoing passenger service was provided during FY 1990 by two cruise ships--the INDEPENDENCE and CONSTITUTION--each with a 750-passenger capacity. Built in 1950 and 1951 and refurbished in 1988, the vessels were operated by American Hawaii Cruises, Inc., in the Hawaiian inter-island trade.

Additionally, two operators provided local coastwise cruises with U.S.-flag vessels with capacity for fewer than 200 passengers. American Canadian Caribbean Line served the New England Coast, Hudson River, Erie Canal, St. Lawrence Seaway, and Saguenay River. Clipper Cruise Line served the U.S. Atlantic Coast and Pacific (Alaskan) Coasts. During the 1990, winter season these lines also offered cruises to the Bahamas and/or Caribbean Islands.

On the inland waterways, two traditionally styled steamboats, the 267-passenger DELTA QUEEN and the 635-passenger MISSISSIPPI QUEEN, operated by Delta Queen Steamboat Co., provided a variety of cruises on the Mississippi and Ohio Rivers.

Corporate/Service Changes

On January 9, 1990, the Maritime Subsidy Board (Board) approved the transfer of Prudential Lines, Inc.'s ODS Agreement, Contract MA/MSB-421, to Northstar Shipping, Inc.

On August 29, 1990, the Board approved the transfer from Lykes to First American Bulk Carriers Corp. (FABC) of the ODS rights to 20 annual sailings on Trade Route 21 (U.S. Gulf/North Europe) and the obligation to replace two vessels. As part of the action, the MSB approved the time charter by Lykes of two C6-M-F146a ships owned by FABC, for 36 months with subsequent charter extensions of 36 months (through December 31, 1998).

Section 804 Activities

Section 804 of the Merchant Marine Act, 1936, as amended, prohibits any contractor receiving ODS or any holding company, subsidiary, affiliate, or associate of such contractor, directly or indirectly, to own, charter, act as agent or broker for, or operate any foreign-flag vessel which competes with an essential U.S.-flag service, without prior approval of the Secretary of Transportation. The prohibition also applies to any officers, directors, agents, or executives of such an organization.

In May 1990, MARAD extended for a third 2-year period, a section 804 waiver of the provisions originally granted to American President Lines, Ltd. (APL) in May 1986. The waiver allows APL to charter and operate four foreign-flag vessels for feeder service between its Line A or Line B ports through May 1992. The vessels are permitted to serve Singapore, Manila, and Thailand.

During fiscal year 1990, one minor amendment was made to the 5-year section 804 waiver granted to APL on June 3, 1988. That waiver permits the company to own or charter and operate 10 foreign-flag vessels on 6 feeder services in southern and southwestern Asia.

On November 24, 1989, MARAD granted an amendment to a section 804 waiver expiring June 3, 1993, to permit APL to own or charter and operate six foreign-flag vessels between a Line A or Line B port or ports and a port or ports in the People's Republic of China.

On February 8, 1990, MARAD granted an 804 waiver to acquire an interest in or charter up to nine foreign-flag crude/product tankers to Ocean Technical Services, Inc., such waiver necessitated by affiliation with the subsidized operators, Ocean Chemical Carriers, Inc., and Ocean Chemical Transport, Inc.

Foreign Transfers

In FY 1990 MARAD approved the transfer of 85 ships of 1,000 gross tons and over, to foreign ownership and/or registry. Five vessels were sold for scrapping abroad.

Permission was granted for the foreign transfer of 148 vessels of less than 1,000 gross tons during the fiscal year. These included 143 commercial and 5 pleasure craft.

During the year, 56 U.S.-owned ships of over 1,000 gross tons, and 46 under 1,000 gross tons were approved for charter to aliens. Ten charter approvals were either amended or modified.

Pursuant to Public Law 100-710 and implementing regulations, the Agency removed six banks and approved the retention of 35 banks on the Roster of Approved Trustees and Mortgagees. Two new banks were approved as trustees and one new bank as mortgagee.

During the fiscal year there were 23 foreign transfer violations reported involving privately owned ships; 21 were mitigated or settled.

MARAD's approval of the transfers of vessels of 3,000 gross tons and over to foreign ownership or registry, or both (whether for operation or scrapping) are subject to the terms and conditions of the Agency's current Foreign Transfer Policy (46 CFR Part 221

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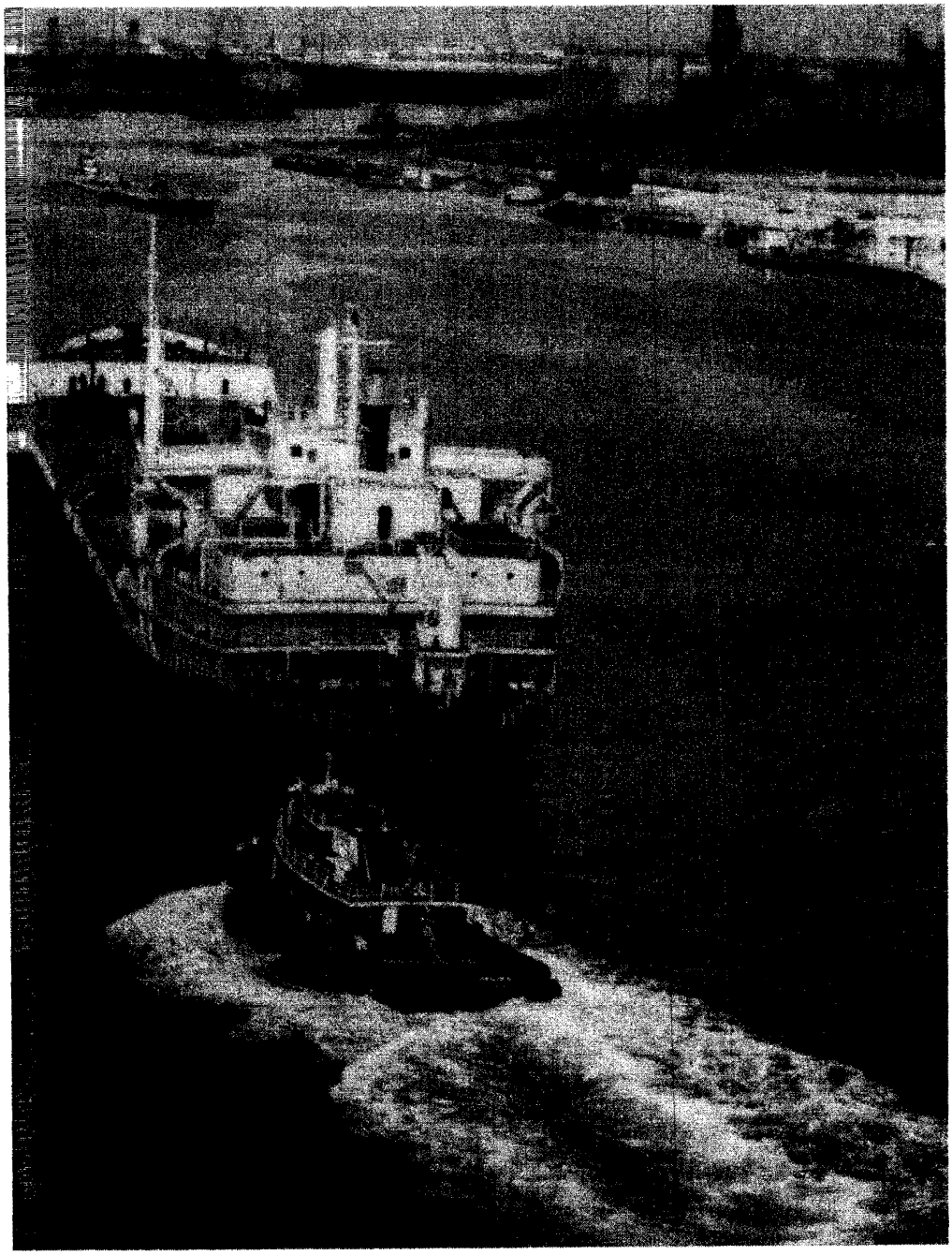
=maining

User charges for processing applications for foreign transfers and similar actions totaled $119,073 in this reporting period. This total includes fees filed pursuant to MARAD contracts reflecting prior domestic and foreign sales.

Activities under Section 9 of the Shipping Act, 1916, are summarized in Table 13.



=orting an oceangoing vessel. ***(Photo: Jerry Bielecki)***

Table 6: U.S. OCEANGOING MERCHANT MARINE--SEPTEMBER 30, 1990 [1]

	Privately Owned		MARAD Owned		Total	
	Number Ships	Deadweight Tons (000)	Number Ships	Deadweight Tons (000)	Number Ships	Deadweight Tons (000)
Active Fleet:						
Passenger/Pass. Cargo	2	14	5	45	7	59
General Cargo	38	617	17	240	55	857
Intermodal	122	3,629	31	710	153	4,339
Bulk Carriers (Inc. TB)	22	972	-	-	22	972
Tankers (Inc. TKB & LNG)	184	12,097	2	50	186	12,147
Total Active Fleet	**368**	**17,329**	**55**	**1,045**	**423**	**18,374**
Inactive Fleet:						
Passenger/Pass. Cargo	1	16	1	11	2	27
General Cargo	6	70	138	1,619	144	1,689
Intermodal	8	263	7	109	15	372
Bulk Carriers (Incl. TB)	3	273	1	25	4	298
Tankers (Incl. TKB & LNG)	20	2,578	27	924	47	3,502
Total Inactive Fleet	**38**	**3,200**	**174**	**2,688**	**212**	**5,888**
Total Active and Inactive:						
Passenger/Pass. Cargo	3	30	6	56	9	86
General Cargo	44	687	155	1,859	199	2,546
Intermodal	130	3,892	38	819	168	4,711
Bulk Carriers (Incl. TB)	25	1,245	1	25	26	1,270
Tankers (Incl. TKB & LNG)	204	14,675	29	974	233	15,649
Total American Flag	**406**	**20,529**	**229** [2]	**3,733**	**635**	**24,262**

[1] Vessels of 1,000 gross tons and over, excluding privately owned tugs, barges, etc.
[2] Includes 217 National Defense Reserve Fleet vessels, 96 of which belong to the Ready Reserve Fleet.
NOTE: Tonnage figures may not add due to rounding.

Table 7: EMPLOYMENT OF U.S.-FLAG OCEANGOING MERCHANT FLEET--SEPTEMBER 30, 1990 [1]

Status and Area of Employment	Total		Vessel Type (tonnage in thousands)									
			Passenger/ Pass. & Cargo		General Cargo		Intermodal		Bulk Carriers [2]		Tankers [3]	
	No.	Deadweight Tons	No.	Deadweight Tons	No.	Deadweight Tons	No.	Deadweight Tons	No.	Deadweight Tons	No.	Deadweight Tons
Grand Total	**635**	**24,262**	**9**	**86**	**199**	**2,456**	**168**	**4,711**	**26**	**1,270**	**233**	**15,649**
Active Vessels	**423**	**18,374**	**7**	**59**	**55**	**857**	**153**	**4,339**	**22**	**972**	**186**	**12,147**
Privately Owned	**368**	**17,329**	**2**	**14**	**38**	**617**	**122**	**3,629**	**22**	**972**	**184**	**12,097**
U.S. Foreign Trade	**131**	**5,119**	-	-	**27**	**426**	**66**	**2,271**	**15**	**785**	**23**	**1,637**
Foreign-to-Foreign	**25**	**8,624**	**2**	**14**	**2**	**24**	**26**	**549**	**7**	**187**	**121**	**7,850**
Domestic Trade	**158**	**8,624**	**2**	**14**	**2**	**24**	**26**	**549**	**7**	**187**	**121**	**7,850**
Coastal	83	3,134	-	-	2	24	-	-	5	132	76	2,978
Noncontiguous	75	5,490	2	14	-	-	26	549	2	55	45	4,872
M.S.C. Charter	**54**	**1,483**	-	-	**9**	**167**	**21**	**582**	-	-	**24**	**734**
Government Owned	**55**	**1,045**	**5**	**45**	**17**	**240**	**31**	**710**	-	-	**2**	**50**
Ready Reserve Force (RRF)	45	935	2	23	13	188	29	691	-	-	-	-
Special Programs [4]	-	-	-	-	-	-	-	-	-	-	-	-
Other Custody	1	16	-	-	-	-	1	16	-	-	-	-
Inactive Vessels	**212**	**5,888**	**2**	**27**	**144**	**1,689**	**15**	**372**	**4**	**298**	**47**	**3,502**
Privately Owned	**38**	**3,200**	**1**	**16**	**6**	**70**	**8**	**263**	**3**	**273**	**20**	**2,578**
Temporarily Inactive	2	214	-	-	-	-	1	41	-	-	1	173
Laid-up	28	2,754	1	16	2	15	6	192	3	273	16	2,258
Laid-up (MARAD Custody)	8	232	-	-	4	55	1	30	-	-	3	147
Government Owned (MARAD Custody)	**174**	**2,688**	**1**	**11**	**138**	**1,619**	**7**	**109**	**1**	**25**	**27**	**924**
National Defense Reserve Fleet	**165**	**2,382**	**1**	**11**	**133**	**1,560**	**7**	**109**	-	-	**24**	**702**
Ready Reserve Force (RRF) [5]	51	829	-	-	37	495	4	72	-	-	10	262
Other Reserve	114	1,553	1	11	96	1,065	3	37	-	-	14	440
Non-Retention	6	28	-	-	1	11	-	-	-	-	1	17
Non-Retention [6]	5	59	-	-	5	59	-	-	-	-	-	-
In Processing for RRF	-	-	-	-	-	-	-	-	-	-	-	-
Other Government Owned	**4**	**247**	-	-	-	-	-	-	**1**	**25**	**3**	**222**

[1] Excludes vessels operating exclusively on the Great Lakes, inland waterways, and those owned by the United States Army and Navy and special types such as cable ships, tugs. etc.

[2] Includes Tug Barges.

[3] Includes Tanker Barges and LNG vessels.

[4] Vessels unavailable for activation due to special status.

[5] Excludes vessels under active Government owned.

[6] Vessels not actively maintained.

Table 8: MAJOR MERCHANT FLEETS OF THE WORLD -- JANUARY 1, 1990

Country	No. of Ships[1]	Rank by No. of Ships	Deadweight Tons	Rank by Deadweight Tonnage
Liberia	1,409	3	88,275,000	1
Panama	3,189	1	70,537,000	2
Greece	914	7	36,537,000	3
Japan	1,007	6	36,237,000	4
Cyrpus	1,054	5	29,729,000	5
Norway (NIS)	587	8	28,800,000	6
U.S.S.R.	2,428	2	25,735,000	7
British Dependent Territories	545	10	24,810,000	8
United States (Private)	407	14	20,439,000	9
Bahamas	530	11	19,719,000	10
China	1,281	4	19,611,000	11
Philippines	558	9	14,948,000	12
Korea (South)	429	13	11,909,000	13
Singapore	407	15	11,494,000	14
Italy	479	12	10,514,000	15
All Others[2]	7,759		155,195,000	
Total	**22,983**		**604,489,000**	

[1] Oceangoing merchant ships of 1,000 gross tons and over.
[2] Includes 248 United States Government-Owned ships of 3,978,000 dwt.

RNE FOREIGN TRADE/COMMERCIAL CARGO CARRIED [1]

Tonnage (Millions)

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
772.2	760.0	675.5	630.4	676.8	640.9	674.8	718.7	786.0	836.3
28.2	34.2	31.1	36.7	29.4	27.3	28.5	28.8	30.7	36.4
3.7	4.5	4.6	5.8	4.3	4.3	4.2	4.0	3.9	4.4
59.3	60.0	54.5	56.8	63.5	66.7	71.8	79.4	83.3	91.6
16.2	16.5	14.3	14.0	13.8	14.0	14.3	11.9	14.0	17.5
27.3	27.6	26.2	24.6	21.7	21.0	19.9	14.9	16.9	19.1
356.7	365.6	335.8	317.7	346.3	327.5	309.0	327.1	361.1	366.6
4.1	4.5	3.3	4.8	5.1	5.1	4.9	6.3	6.2	6.2
1.2	1.2	1.0	1.5	1.5	1.5	1.6	1.9	1.7	1.7
356.3	334.4	285.6	256.0	266.9	246.7	294.0	312.2	341.6	378.1
7.9	13.2	13.2	17.9	10.5	8.2	9.3	10.6	10.5	12.7
2.2	3.9	4.7	7.0	3.9	3.3	3.2	3.4	3.1	3.4

Value ($ Billions)

294.3	315.4	281.2	267.4	302.7	311.0	320.5	359.4	397.7	437.0
42.3	47.0	43.5	43.0	44.6	46.4	49.0	44.8	57.7	71.3
14.4	14.9	15.5	16.1	14.7	14.9	15.3	12.5	14.5	16.3
136.9	148.0	140.6	139.6	164.0	181.2	199.9	221.9	253.4	279.7
39.2	41.7	39.1	37.9	41.2	43.4	46.5	41.7	53.1	65.0
28.7	28.1	27.8	27.2	25.1	24.0	23.3	18.8	21.0	23.3
74.1	81.0	72.0	69.8	78.6	77.2	83.2	92.1	98.9	100.7
1.3	1.9	1.2	1.2	1.1	1.4	1.3	1.6	3.2	4.4
1.8	2.3	1.7	1.7	1.5	1.8	1.6	1.8	3.2	4.3
83.6	86.4	68.5	58.0	60.1	52.6	37.4	45.4	45.4	56.6
1.8	3.4	3.2	4.0	2.2	1.6	1.2	1.5	1.4	1.9
2.1	3.9	4.7	6.8	3.7	3.1	3.2	3.2	3.1	3.3

[1] ■nt-sponsored cargo; excludes U.S./Canada translakes cargoes and certain Department of

Table 10: ODS ACCRUALS AND OUTLAYS--JANUARY 1, 1937, TO SEPTEMBER 30, 1990

Calendar Year of Operation	Accruals			Outlays		Net Accrual Liability
	Subsidies	Recapture	Subsidy Accrual	Paid in FY 1990	Total Amount of Net Accrued Paid	
1937-1955	$682,457,954	$157,632,946	$524,825,008	$-0-	$524,825,008	$-0-
1956-1960	751,430,098	63,755,409	687,674,689	-0-	687,674,689	-0-
1961	170,884,261	2,042,748	168,841,513	-0-	168,841,513	-0-
1962	179,396,797	4,929,404	174,467,393	-0-	174,467,393	-0-
1963	189,119,876	(1,415,917)	190,535,793	-0-	190,535,793	-0-
1964	220,334,818	674,506	219,660,312	-0-	219,660,312	-0-
1965	183,913,236	1,014,005	182,899,231	-0-	182,899,231	-0-
1966	202,734,069	3,229,471	199,504,598	-0-	199,504,598	-0-
1967	220,579,702	5,162,831	215,416,871	-0-	215,416,871	-0-
1968	222,862,970	3,673,790	219,189,180	-0-	219,189,180	-0-
1969	230,256,091	2,217,144	228,038,947	-0-	228,038,947	-0-
1970	232,541,169	(1,908,643)	234,449,812	-0-	234,449,812	-0-
1971	202,440,101	(2,821,259)	205,261,360	-0-	205,261,360	-0-
1972	190,732,158	-0-	190,732,158	-0-	190,732,158	-0-
1973	219,475,963	-0-	219,475,963	-0-	219,475,963	-0-
1974	219,297,428	-0-	219,297,428	-0-	219,297,428	-0-
1975	260,676,152	-0-	260,676,152	-0-	260,676,152	-0-
1976	275,267,465	-0-	275,267,465	-0-	275,267,465	-0-
1977	294,779,691	-0-	294,779,691	-0-	294,779,691	-0-
1978	285,075,424	-0-	285,075,424	-0-	285,075,424	-0-
1979	279,347,897	-0-	279,347,897	-0-	279,347,897	-0-
1980	386,309,467	-0-	386,309,467	-0-	386,309,467	-0-
1981	352,060,560	-0-	352,060,560	-0-	352,060,560	-0-
1982	366,654,502	-0-	366,654,502	-0-	366,654,502	-0-
1983	278,716,168	-0-	278,716,168	-0-	278,716,168	-0-
1984	342,756,506	-0-	342,756,506	-0-	342,756,628	-0-
1985	367,368,710	-0-	367,368,710	-0-	367,368,710	-0-
1986	318,295,019	-0-	318,295,019	-0-	318,295,019	-0-
1987	180,778,629	-0-	180,778,629	-0-	180,778,629	-0-
1988	218,491,259	-0-	218,491,259	-0-	218,491,137	-0-
1989	220,409,000	-0-	220,409,000	31,585,935	219,025,341	3,431,687
1990	225,870,000	-0-	225,870,000	199,385,862	199,385,862	26,484,138
Total Regular ODS	$8,973,361,168	$238,186,435	$8,735,174,733	$230,971,797	$8,705,258,908	$29,915,825
Soviet Grain Program [1]	$147,132,626	$-0-	$147,132,626	$-0-	$147,132,626	-0-
Total ODS	**$9,120,493,794**	**$238,186,435**	**$8,882,307,359**	**$230,971,797**	**$8,852,391,534**	**$29,915,825**

[1] No longer operative.

Table 11: OPERATING-DIFFERENTIAL SUBSIDY ACCRUALS AND OUTLAYS BY LINES--JANUARY 1, 1937, TO SEPTEMBER 30, 1990

LINES	Accruals				Net Accrued Liability
	ODS	Recapture	Net Accrual	ODS Paid	
Aeron Marine Shipping	$26,079,663	$0	$26,079,663	$26,079,663	$0
American Banner Lines [1]	2,626,512	0	2,626,512	2,626,512	0
American Diamond Lines [1]	185,802	28,492	157,310	157,310	0
American Export Lines [2]	693,821,868	10,700,587	683,121,281	683,121,281	0
American Mail Lines [3]	158,340,739	7,424,902	150,915,837	150,915,837	0
American Maritime Transport	9,079,760	0	9,079,760	5,645,813	3,433,947
American President Lines [3]	1,363,734,864	17,676,493	1,346,058,371	1,342,568,536	3,489,835
American Shipping	21,213,639	0	21,213,639	21,213,639	0
American Steamship	76,462	0	76,462	76,462	0
Aquarius Marine Co.	36,597,364	0	36,597,364	36,597,364	0
Aries Marine Shipping	25,291,415	0	25,291,415	25,291,415	0
Asco-Falcon II	269,493	0	269,493	269,493	0
Atlantic & Caribbean S/N [1]	63,209	45,496	17,713	17,713	0
Atlas Marine Co.	37,015,568	0	37,015,568	37,015,568	0
Baltimore Steamship [1]	416,269	0	416,269	416,269	0
Bloomfield Steamship [1]	15,588,085	2,613,688	12,974,397	12,974,397	0
Brookville	1,475,487	0	1,475,487	1,475,487	0
Chestnut Shipping Co.	60,510,265	0	60,510,265	60,510,265	0
Delta Steamship Lines	575,053,817	8,185,313	566,868,504	566,868,504	0
Ecological Shipping Co.	4,968,943	0	4,968,943	4,968,943	0
Equity	1,126,610	0	1,126,610	1,126,610	0
Farrell Lines	644,531,632	1,855,375	642,676,257	641,653,872	1,022,385
Gulf & South American Steamship	34,471,780	5,226,214	29,245,566	29,245,566	0
Lykes Bros. Steamship	1,807,943,325	52,050,598	1,755,892,727	1,741,569,109	14,323,618
Margate Shipping	103,842,454	0	103,842,454	101,900,901	1,941,553
Moore McCormack Bulk Transport	91,145,219	0	91,145,219	89,615,923	1,529,296
Moore McCormack Lines [8]	734,212,876	17,762,445	716,450,431	716,450,431	0
N.Y. & Cuba Mail Steamship	8,090,108	1,207,331	6,882,777	6,882,777	0
Ocean Carriers	39,961,171	0	39,961,171	39,865,256	104,915
Oceanic Steamship [5]	113,947,681	1,171,756	112,775,925	112,775,925	0
Pacific Argentina Brazil Line [1]	7,963,936	270,701	7,693,235	7,693,235	0
Pacific Far East Line [6]	283,693,959	23,479,204	260,214,755	260,214,755	0
Pacific Shipping Inc.	18,840,400	0	18,840,400	18,840,400	0
Prudential Lines [4]	641,647,708	24,223,564	617,424,144	617,424,144	0
Prudential Steamship [1]	26,352,954	1,680,796	24,672,158	24,672,158	0
Sea Shipping	25,819,800	2,429,102	23,390,698	23,390,698	0
Seabulk Transmarine I & II, Inc.	37,092,376	0	37,092,376	35,845,320	1,247,056
South Atlantic Steamship [1]	96,374	84,692	11,682	11,682	0
States Steamship	231,997,100	5,110,997	226,886,103	226,886,103	0
United States Lines [7]	750,518,013	54,958,689	695,559,324	695,559,324	0
Waterman Steamship	319,746,666	0	319,746,666	319,955,869	2,790,797
Worth Oil Transport	17,428,314	0	17,428,314	17,428,314	0
Vulcan Carriers	481,488	0	481,488	449,065	32,423
Total Regular ODS	$8,973,361,168	$238,186,435	$8,735,174,733	$ 8,705,258,908	$29,883,402
Soviet Grain Programs [9]	$147,132,626		$147,132,626	$147,132,626	$0
Total ODS	**$9,120,493,794**	**$238,186,435**	**$8,882,307,359**	**$8,852,391,534**	**$29,883,402**

[1] No longer subsidized or combined with other subsidized lines.
[2] AEL was acquired by Farrell Lines, March 29, 1978.
[3] APL merged its operations with AML's October 10, 1973.
[4] Changed from Prudential-Grace Lines, Inc., August 1, 1974.
[5] Purchased by Lykes Bros. Steamship Co., Inc.
[6] Went into receivership August 2, 1978.
[7] Ceased to be subsidized line in November 1970 but returned as a subsidized carrier in January 1981.
[8] Purchased by United States Lines October 1983.
[9] No longer operative.

Table 12 : ODS CONTRACTS IN FORCE--SEPTEMBER 30, 1990

A. Liner Trades

Operator and Contract No.	Contract Duration	Number Subsidized Ships	Service (Trade Route/Area)	Annual Sailings Minimum	Annual Sailings Maximum	
American President Lines, Ltd. MA/MSB-417	1-01-78 to 12-31-97	23	Transpacific Services: [1] California/Far East Line A (TR 29)	72	108	
			California/Far East Line A Extension (TRs 17, 28, 29) [2, 3]	18	28	
			Washington-Oregon/Far East Line B (TR 29)	54	80	
			Washington-Oregon/Far East Line B Extension (TRs 17, 28, 29) [4]	6	-	
Farrell Lines Incorporated MA/MSB-352	1-01-76 to 12-31-95	1	U.S. Atlantic/West Africa (TR 14-1) [5, 6]	20	38	
Farrell Lines Incorporated MA/MSB-482	1-01-81 to 12-31-2000	4	U.S. Atlantic/Mediterranean Service (TRs 10, 13) [6]	44	66	
Lykes Bros. Steamship Co., Inc. MA/MSB-451	1-01-79 to 12-31-98	27	U.S. Gulf/U.K. Continent (TR 21)	36	60	
			U.S. Gulf & S. Atlantic/ Mediterranean (TR 13) [7, 12]	42	48	
			U.S. Gulf/Far East (TR 22) [7, 9, 10, 12, 15]	36	60	Overall maximum not to exceed 330
			U.S. Gulf/South & East Africa (TR 15-B) [7, 9, 11, 12, 15]	18	24	
			U.S. Atlantic & Gulf/West Coast South America (TR 31/2) [13]	24	48	
			Great Lakes/Mediterranean-India (Trade Area 4) [7, 12]	3	10	
			U.S. Pacific/Far East, North (TR 29) [14]	20	80	
			U.S. Pacific/Far East, South (TR 17/29) [14]	20		
Northstar Shipping, Inc. MA/MSB-421	1-01-78 to 12-31-97	0	U.S. North Atlantic/Mediterranean (TR 10) [16]	24	36	
United States Lines, Inc. [17] MA/MSB-483						
Addendum No. 4 to amended and restated MA/MSB-483	7-08-83 to 12-31-95	0	U.S. Atlantic & Gulf/Australia, New Zealand (TR 16)	16	21	
United States Lines (S.A.) Inc. 16/ MA/MSB-338 (formerly Moore-McCormack Lines, Inc.)	1-01-75 to 12-31-94	0	U.S. Atlantic/East Coast South America (TR 1)	40	70	
		0	U.S. Atlantic/South & East Africa (TR 15-A)	22	36	
MA/MSB-353 (formerly Delta Steamship Lines, Inc.)	1-01-76 to 12-31-95	0	U.S. Gulf/East Coast South America (TR 20)	26	53	
MA/MSB-425 (formerly Delta Steamship Lines, Inc.)	6-17-78 to 12-31-97	0	U.S. Atlantic/Caribbean (TR 4)	22	33	

Operator and Contract No.	Contract Duration	Number Subsidized Ships	Service (Trade Route/Area)	Annual Sailings	
				Minimum	Maximum
Waterman Steamship Corp. MA/MSB-450	11-21-78 to 12-31-96	4 [18]	U.S. Atlantic-Gulf/India, Persian Gulf & Red Sea, Indonesia, Malaysia, Singapore, Brunei (TRs 18, 17)	8	16
Total Liner Trades		**59**			

[1] Dual service privileges provide that full containerships may call at both California and Washington-Oregon, with voyages originating in California being Line A sailings, and voyages originating in Washington-Oregon being Line B sailings; however, both types of such voyages shall be counted toward maximum sailings in both Lines A and B, with the outbound and inbound portions of the sailings being counted and applied separately.

[2] Service to/from U.S. Atlantic ports is on a privilege basis with a maximum of 28 sailings.

[3] Includes required service to Indonesia, Malaysia (except Sarawak and Sabah), and Singapore. Numbers of required sailings are a portion of the required sailings on Line A.

[4] Includes required service to Indonesia, Malaysia, and Singapore. Numbers of required sailings are a portion of the required sailings on Line B.

[5] Farrell is also permitted to make 12 sailings annually from the U.S. Gulf to West Africa.

[6] Farrell owns one LASH vessel, AUSTRAL RAINBOW, which is eligible to operate with subsidy on TR 10/13 or 14-1.

[7] Lykes is permitted to make 24 sailings annually between U.S. North Atlantic and Mediterranean ports on a privilege basis in conjunction with required service on TR 13, 15B, 22, and TA 4. Lykes is permitted to make 48 sailings annually between U.S. Pacific and Mediterranean ports on a privilege basis in conjunction with required service on TR 13.

[8] Lykes is permitted to make 24 sailings annually between U.S. Atlantic and South and East Africa on a privilege basis in conjunction with required service on TR 15B.

[9] Lykes has the option to perform additional sailings on TRs 22 and 15B over maximum sailings if the minimum sailings are made on all other services: on TR 22, nine additional sailings; on TR 15B, five additional sailings. The overall maximum must not exceed 330 annual sailings.

[10] Subject to stipulation that a minimum of 12 and a maximum of 30 sailings per annum shall include ports in Indonesia and Malaysia (including Singapore).

[11] Lykes is also permitted to make 12 sailings annually from the U.S. Gulf to West Africa on a privilege basis in conjunction with required service on TR 15B.

[12] Lykes is permitted to make 16 sailings annually between U.S. Atlantic and Gulf ports and Southwest Asian ports (Suez to Burma) in conjunction with required service on TR 13, TR 15B, TR 22 and TA 4.

[13] Caribbean Subservice--a maximum of 24 sailings per annum may provide limited TR 19 service exclusively between U.S. Gulf ports and ports on the Atlantic coast of the Republic of Panama, the former Panama Canal Zone, and the north coast of Colombia.

[14] Lykes stopped service on TR 29 and TR 17/29 in July 1986.

[15] Lykes may make privilege calls from the U.S. Atlantic to the Far East in conjunction with required service on TR 22.

[16] ODS Contract was transferred to Northstar Shipping, Inc. on January 9, 1990, from Prudential Lines, Inc.

[17] USL/USL(S.A.), in bankruptcy, provides no service under the subsidy contract; contracts have been authorized by MSB to be assigned to Midlantic National Bank as Trustee.

[18] Between March and July 1984, Waterman sub-bareboat chartered three of the six vessels assigned to the contract back to Central Gulf Lines, from which they had been bareboat chartered. Waterman has again bareboat chartered the GREEN VALLEY from Central Gulf through 1990 as substitute for PRESIDENT TAYLOR which was chartered from American President Lines, Ltd. for 1988.

Table 12: (Continued)

B. Bulk Trades:

Operator and Contract No.	ODS Agreements: Contract Effective Date	ODS Agreements: Contract Termination Date	Number of Subsidized Ships 9/30/90	Service	Annual Sailings: Minimum No. of Days
American Maritime Transport, Inc. MA/MSB-129	8-09-73	8-08-93	2	Worldwide Bulk Trade	335
American Maritime Transport, Inc. MA/MSB-166	10-10-74	10-09-94	1	Worldwide Bulk Trade	335
Aquarius Marine Co. MA/MSB-309	10-15-75	10-14-95	1	Worldwide Bulk Trade	335
Asco-Falcon II Shipping Co. MA/MSB-439	5-24-81	5-23-2001	1	Worldwide Bulk Trade	335
Atlas Marine Co. MA/MSB-274	12-30-76	12-29-96	1	Worldwide Bulk Trade	335
Brookville Shipping, Inc. MA/MSB-166(a)	10-10-74	10-09-94	5 [1]	Worldwide Bulk Trade	335
Brookville Shipping, Inc. MA/MSB-272	4-14-76	4-13-96	1	Worldwide Bulk Trade	335
Chestnut Shipping Co. MA/MSB-299	12-01-76	11-30-96	6 [2]	Worldwide Bulk Trade	335
Equity Carriers I, Inc. MA/MSB-439	5-24-81	5-23-2001	1	Worldwide Bulk Trade	335
Equity Carriers III, Inc. MA/MSB-439	5-24-81	5-23-2001	1	Worldwide Bulk Trade	335
Margate Shipping Co. MA/MSB-134	12-28-73	12-27-93	3	Worldwide Bulk Trade	335
Moore McCormack Bulk Transport, Inc. MA/MSB-295	12-10-75	12-09-95	3	Worldwide Bulk Trade	335
Ocean Chemical Carriers, Inc. MA/MSB-442	9-20-81	9-19-2001	1	Worldwide Bulk Trade	335
Ocean Chemical Transport, Inc. MA/MSB-440	3-27-81	3-26-2001	1	Worldwide Bulk Trade	335
Vulcan Carriers, Ltd. MA/MSB-167	4-03-76	4-02-96	6 [3]	Worldwide Bulk Trade	335
Total Bulk Trades			**35**		

[1] Four 63,700 DWT dry bulk vessels (LIBERTY SEA, LIBERTY SPIRIT, LIBERTY STAR, and LIBERTY SUN) are eligible to share ODS under Brookville's two ODS contracts, not to exceed two ship years of subsidy annually.

[2] Four vessels (CHILBAR, ENERGY INDEPENDENCE, FREDERICKSBURG, and GOLDEN GATE) are eligible to share ODS under Chestnut and Margate's two ODS contracts, not to exceed five ship years of subsidy annually.

[3] Two 45,500 dry bulk vessels (OMI MISSOURI and OMI SACRAMENTO) are eligible to share ODS under Vulcan's ODS contract, not to exceed four ship years of subsidy annually.

Table 13: FOREIGN TRANSFERS AND OTHER SECTION 9 APPROVALS--FY 1990[1]

A. Program Summary	Number	Gross Tons
U.S. PRIVATELY OWNED VESSELS		
Transfer to Foreign Ownership and/or Registry		
Vessels of 1,000 Gross Tons and Over	85	642,112
Vessels Under 1,000 Gross Tons		
Commercial Craft	143	84,694
Pleasure Craft	5	569
Subtotal	**148**	**85,263**
Total	**233**	**727,375**
Charters to Aliens		
Vessels of 1,000 Gross Tons and Over		
Approvals	56	
Modifications	2	
Extensions	6	
Vessels of Under 1,000 Gross Tons		
Approvals	46	
Modifications	0	
Extensions	2	
Violations		
Reported	23	
Mitigated or Settled	21	
Recissions (Sales to Aliens)	1	
Foreign Transfers-Stock/Control/Interest	9	
Modification (Stock Transfer)	0	
Modifications (Sales to Aliens)	3	
Mortgages to Aliens	2	
Denials	5	
U.S. GOVERNMENT-OWNED VESSELS	1	7,607

[1]Approvals granted by MARAD pursuant to section 9, Shipping Act, 1916, as amended.

Table 13: (Continued)

B. FOREIGN TRANSFER APPROVALS--Vessels of 1,000 Gross Tons and Over

	Pursuant to Section 9 (U.S. Owned and U.S. Documented)		
	No. of Vessels	Gross Tons	Average Age
Tankers	7	313,145	23 yrs
Cargo	1	17,504	46 yrs
Passenger/Cargo	1	14,618	38 yrs
Miscellaneous	76	296,845	15 yrs
Total	**85**	**642,112**	**16 yrs**

Recapitulation by Nationality	Number	Gross Tons
Bahamian	7	89,231
Barbados	1	2,622
British	1	1,180
Canadian	3	6,695
Columbian	5	5,121
Korea, Republic of (South)	4	4,541
Liberian	28	258,998
Mexican	2	6,248
Panamanian	14	154,186
St. Vincent & the Grenadines	2	11,373
Singaporean	1	1,255
South African	1	5,923
Vanuatu	1	1,843
Venezuelan	1	3,153
Total	**71**	**552,369**
Sale Alien (No Foreign Registry)	9	14,226
Sale to Alien for Scrapping	5	75,517
Total	**14**	**89,743**
GRAND TOTAL	**85**	**642,112**
U.S. GOVERNMENT-OWNED	**1**	

Chapter 3

Domestic Operations

The segment of the American merchant marine which operates in the Great Lakes, on the inland waterways, and in the coastwise, intercoastal, and domestic offshore trades carries a combined total of over one billion short tons of cargo each year.

Great Lakes

On September 30, 1990, the U.S. Great Lakes bulk fleet consisted of 69 self-propelled vessels of 1000 gross tons and over, 59 of which were active. (See Table 14.) This represents nearly full utilization of the vessels capable of competitive operation in the region's dry bulk trades. Comparatively small size, lack of self-unloading equipment, and other economic factors make the eight ships in inactive long-term lay-up uneconomical to operate except in extreme need.

The primary dry bulk cargoes, iron ore, coal, and limestone, shipped from U.S. ports during the 1990 shipping season through September totaled 81 million short tons. Vessel use remained high throughout the year. Total cargo carried in 1990 was about 9 percent more than the previous year in spite of low water levels early in the season, which reduced vessel draft as much as 10 inches, and vessel carrying capacity by as much as 1,700 tons each trip.

Inland Waterways

Overall, the combined effects of unusually extreme weather, with either too little or too much precipitation, lock maintenance delays, rising fuel prices, and depressed freight rates made the year exceptionally challenging for even the most efficient barge operators.

Deputy Secretary of Transportation Elaine Chao at the christening of the SS KAYE E. BARKER and LEE A. TREGURTHA on August 2, 1990. *(Photo: Interlake)*

A number of barge line mergers, which eliminated redundant operations, made operators more efficient, and improved profitability during the period. Barge earnings, while still far below the levels of the 1970s, increased four- to five-fold over the 1986 lows. The resulting inland fleet, while smaller, was more efficient and able to handle more tonnage as a result of fewer delays, more trips per year, less idle time, and better communications.

Navigation conditions improved on the Mississippi River during 1990, after serious operating problems caused by drought in 1988. However, the Missouri River, as a result of a continued low rainfall throughout the upper river basin, was expected to close on October 1, 1990, 30 days early.

New construction for inland equipment continued to increase. Influenced by the requirements of the Oil Pollution Act of 1990, tank barge orders stipulate double-hull construction. Second-tier shipyards reported several more new orders for barges and towboats.

In two separate increases in the fall of 1989, freight rates nearly doubled within a few days. The increased demand for barges during the annual harvest drove rates up. Also, the purchase of nearly 8 million metric tons of corn by the Soviet Union, all to be delivered before April 1990, resulted in a peak rate of 300 percent of tariff (up from a more normal 17 percent the previous month) in November 1989. Rates were back to their normal range by September 30, 1990, however.

A major bottleneck was eliminated when the new Melvin Price Lock at Alton, IL, which replaced old L&D 26, was opened to traffic in February 1990. Waterway operators also were looking forward to the nine new navigational structures scheduled to open between 1991 and 2000.

Areas of major concern to inland operators included adverse weather (going from the third driest fall on record in 1989 to the third wettest spring on record in 1990), sufficient money in the Inland Waterways Trust Fund, soaring fuel costs, and controversy over water rights versus national water management. By the end of FY 1990, seven States had enacted or were considering legislation to permit gambling aboard river cruise vessels.

In calendar year 1988, an all-time high 671.8 million short tons of cargo moved on the inland waterways compared with 651.8 million short tons in 1987. Tonnage for 1989 was estimated to have increased to a record 681 million short tons.

Domestic Ocean Trades

During FY 1990, Matson Navigation Co. purchased the Roll-on/Roll-off (RO/RO) vessel CAGUAS from Puerto Rico Maritime Shipping Authority and renamed it KAINALU. Following conversion to increase its container capacity, the vessel was added to the operator's mainland/Hawaii route, permitting four weekly sailings to Hawaii.

Sea-Land Service, Inc., purchased two Lighter-Aboard Ship (LASH) vessels from the Maritime Administration (MARAD). The EDWARD RUTLEDGE and BENJAMIN HARRISON will be converted to full containerships and added to the five vessels operated from the U.S. Gulf Coast to Hawaii, Guam, and the Far East.

Domestic Tanker Movements

The major sources of employment for the privately owned U.S.-flag tanker fleet during the period continued to be the Alaska North Slope (ANS) trade, the U.S. Gulf to U.S. Atlantic coastal trade, and movements for the Strategic Petroleum Reserve (SPR).

As of May 1990, 21 tankers (including tank barges and LNG vessels) totaling nearly 2.8 million deadweight tons (dwt.), were in layup, of which two were temporarily inactive.

Some 60 percent of the fleet was involved in the Alaskan oil trades, the movement of crude oil from Valdez to mainland U.S. ports and Hawaii. The number of U.S.-flag tankers employed on a full-time equivalent basis in the ANS crude oil trade has been declining steadily since 1987, a reflection of declining production from Alaska's Prudhoe Bay. The majority of the tankers involved in this trade were proprietary vessels, either owned or long-term chartered and operated by the major oil companies.

The 209,000-dwt. tanker EXXON VALDEZ, as a result of her grounding and catastrophic oil spill in Prince William Sound, AK, was repaired and renamed EXXON MEDITERRANEAN, and transferred to foreign trade.

The U.S. Gulf to East Coast petroleum tanker trade remained generally sluggish during FY 1990, due primarily to the increasing

dominance of pipeline transportation, and increasing petroleum products imports. Reported 1990 fixtures yielded a little over $10 per long ton for a Houston to New York movement of crude oil, only slightly over comparable 1989 rates.

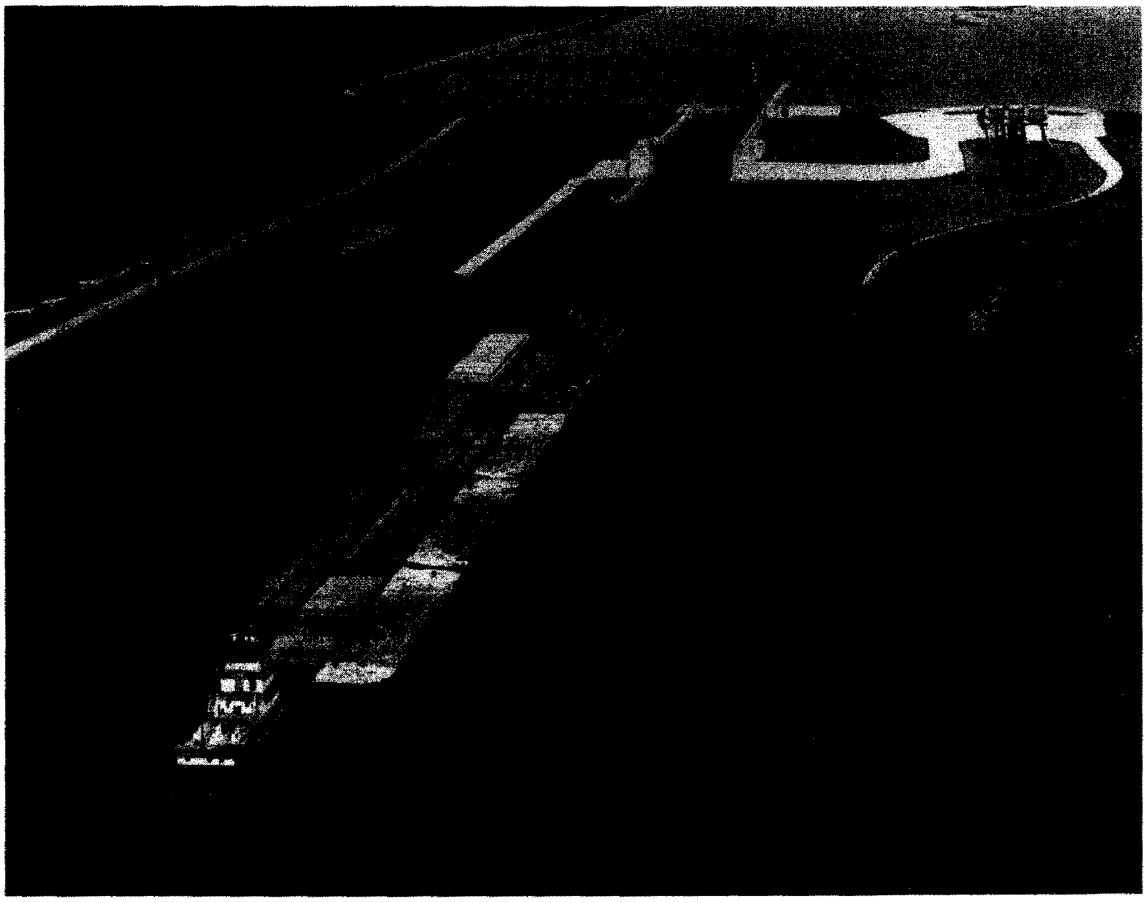
Imports for the SPR have trended downward in recent years, reducing the requirement for U.S.-flag tankers. However, near the end of FY 1990, President Bush authorized the release of up to 5 million barrels of crude oil from the SPR, creating an immediate demand for U.S. tankers for single-voyage movements of crude from three storage terminals in Texas and Louisiana.

Offshore Drilling

At the end of FY 1990, there were 669 units (excluding tenders) in the world inventory of mobile offshore drilling units. Of these, 329 were owned and operated by U.S.-based companies or their foreign subsidiaries. Fifteen mobile units were under construction worldwide, with five units on order from U.S.-based drilling contractors. At the end of FY 1990 there were three units under construction at a U.S. shipyard.

The number of U.S.-owned and operated rigs decreased by 56 units in FY 1990. On September 30, 1990, 197 rigs, or 60 percent of the total U.S.-owned and operated drilling fleet, were stationed in U.S. waters. All but two of these were located in the Gulf of Mexico. Additionally, FY 1990 utilization of the Gulf-based mobile drilling fleet fluctuated between a high of 73 percent in December 1989 and a low of 65 percent in August 1990.

In the Gulf of Mexico, day rates, particularly for jackups, rose during the fiscal year. Rates for semisubmersibles and drill ships, however, were generally unchanged from those of a year earlier. For jackups, the lowest reported rates were nearly equal to the highest rates reported a year earlier. While at the high end, rates were somewhat improved, the best overall recovery was recorded



Barges transporting SeaSheds through the Tenn-Tom to Mobile, AL for loading on RRF vessels bound for Operation DESERT SHIELD. *(Photo: Port of Mobile)*

among cantilever jackups rated for operations in at least 250 feet of water. These form the largest rig class in the Gulf.

At the end of FY 1990, an independent-leg cantilever jackup rated for operations in at least 250 feet of water could command a rate of from $14,000 to $24,000 per day for work in the Gulf. This compares to a range of from $11,000 to $21,000 per day at the end of FY 1989.

As of September 30, 1990, MARAD had two mobile offshore drilling units--both semisubmersibles--in its inventory.

Offshore Service Vessels

The market for U.S.-based operators of offshore service vessels (OSVs) continued to strengthen throughout FY 1990.

At the end of the year, the domestic fleet of OSVs totaled about 280 vessels (excluding crew, utility and small supply boats). The majority are on "term" charters, while most of the remainder effectively work the "spot" market. During the height of the drilling season, approximately 20 vessels were reported off charter and available for hire. As a result of increased demand, day rates for the typical Gulf of Mexico OSV (a 180 foot straight supply vessel with liquid mud carrying capability) reached and at times exceeded $3,000 per day. This compares to a low of $1,100 per day at the depth of the industry depression in 1985-86.

In FY 1990, strong day rates spurred the first domestic supply vessel new construction since the downturn. Four supply vessels in excess of 200 foot length overall are under construction in a U.S. Gulf Coast yard and delivery is expected in 1991.

During FY 1990, MARAD approved the sale of six vessels from its fleet of workboats seized from owners in default of Title XI obligations. The six OSVs went to a newly-organized U.S.-based OSV operator. The sale of three other vessels for transfer to non-oil field-related service was pending at fiscal year-end, leaving 22 OSVs available for sale. While some have been returned to domestic oil field service, most of those vessels seized and then resold by MARAD have been converted for non-oil field uses such as fishing support, oil spill response and oceanographic research.

Table 14: U.S. GREAT LAKES FLEET [1]--SEPTEMBER 30, 1990

	Vessels	Gross Registered Tons	Estimated Deadweight Tons
Total	**78**	**1,112,185**	**2,122,178**
Bulk Carriers	69	1,076,893	2,101,600
Active	59	979,603	1,933,840
Temporarily Inactive	2	18,660	37,900
Laid-Up Inactive (More than 12 monhs)	8	78,630	129,860
Tankers	3	14,022	20,578
Active	2	9,758	14,220
Temporarily Inactive	1	4,264	6,358
Others [2]	6	21,270	-
Active	1	4,244	-
Temporarily Inactive	0	0	-
Laid-Up Inactive (More than 12 months)	5	17,026	-

[1] Self-propelled vessels of 1,000 gross registered tons and over.
[2] Includes railroad car ferries, auto ferries.

Chapter 4

Market Development

The Maritime Administration (MARAD) conducts specialized marketing programs designed to increase U.S.-flag participation in the Nation's oceanborne foreign commerce. Programs are concentrated in the areas of market research, improved communications between carriers and shippers, and individual consultation with firms active in international trade.

Marketing Program

MARAD's marketing program focuses on assisting carriers through market leads and personal contacts with shippers to encourage them to give preference to U.S.-flag vessels for their ocean transportation needs. The Market Lead System collects market intelligence from private and Government sources which MARAD provides to U.S.-flag vessel operators.

In FY 1990 MARAD expanded its market lead system to a monthly basis to keep the carriers informed of potentially available cargoes. Under this new system, MARAD has successfully increased the reported number of individual business opportunities fourfold, from 300 in FY 1989 to over 1,200 during FY 1990. Efforts were initiated to transfer this information to the carriers electronically. This system would expedite their distribution to representatives in the field.

MARAD has offices strategically located throughout the country which consult with the transportation policymakers of import and export firms. In FY 1990 the trade specialists assigned to these offices contacted some 786 firms to encourage the adoption of a company policy to utilize U.S.-flag vessels. Voluntary reports from carriers and shippers indicate that $2.9 million in additional ocean freight revenues for U.S.-flag vessels resulted from these policy consultations. Over the last 8 years, in excess of $128 million in additional revenue for U.S.-flag carriers has been generated by this program.

During FY 1990, MARAD actively participated in 229 seminars, forums, workshops, and other meetings dealing with international trade and distribution. Attended by shippers, carriers, freight forwarders, and other maritime interests, these meetings provided an opportunity to exchange information and views on transportation economics and practices. The meetings also enabled the Agency to brief several thousand executives of firms involved in foreign trade on the national policy benefits which result from shipper utilization of U.S.-flag services.

Market Analysis And Planning

The objective of the Market Analysis and Planning Program is to improve the market performance of the U.S.-flag commercial fleet through increased cargo and profitability.

A report on U.S. import and export oceanborne cargo moving through Canadian ports in 1988 was published during the reporting period. The analysis showed a 20 percent increase in the amount of cargo transshipped through Canada to 4.8 million tons, which represents almost 6 percent of the total U.S. liner trade. For 1987 transshipments through Canada were just under 4 million tons.

Bilateral Cargo Monitoring

MARAD continued monitoring cargo movements between the United States and selected trading partners as part of its efforts to assure a fair transportation environment for U.S.-flag shipping. Countries were selected on the basis of changing trade conditions, unilateral regulatory actions on their part, or the existence of bilateral maritime agreements.

During the year a new bilateral agreement, scheduled to become effective October 1, 1990, was signed with the Soviet Union. This agreement will require continued close monitoring of trade between the United States and Soviet Union.

As a result of the 4-year U.S.-China Bilateral Maritime Agreement signed in December 1988, trade between the two nations was closely monitored during the year. In calendar year 1989, the liner trade between the two countries totaled 5.1 million long tons valued at $13.1 billion, which, when compared to the previous year, represented an increase in value of $3.6 billion (38 percent) and an increase of 1.2 million long tons (32 percent). U.S.-flag liner vessels carried 14 percent of the overall liner trade by weight and 27 percent by value. Chinese-flag vessels carried 26 percent by weight and 14 percent by value. For U.S.-flag vessels the tonnage increased from 565,621 long tons in calendar year 1988 to 700,540 tons in 1989, an increase of 24 percent. The cargo tonnage for the Chinese-flag also

increased significantly during the period from 985,276 long tons to 1,334,812 tons, an increase of 35 percent.

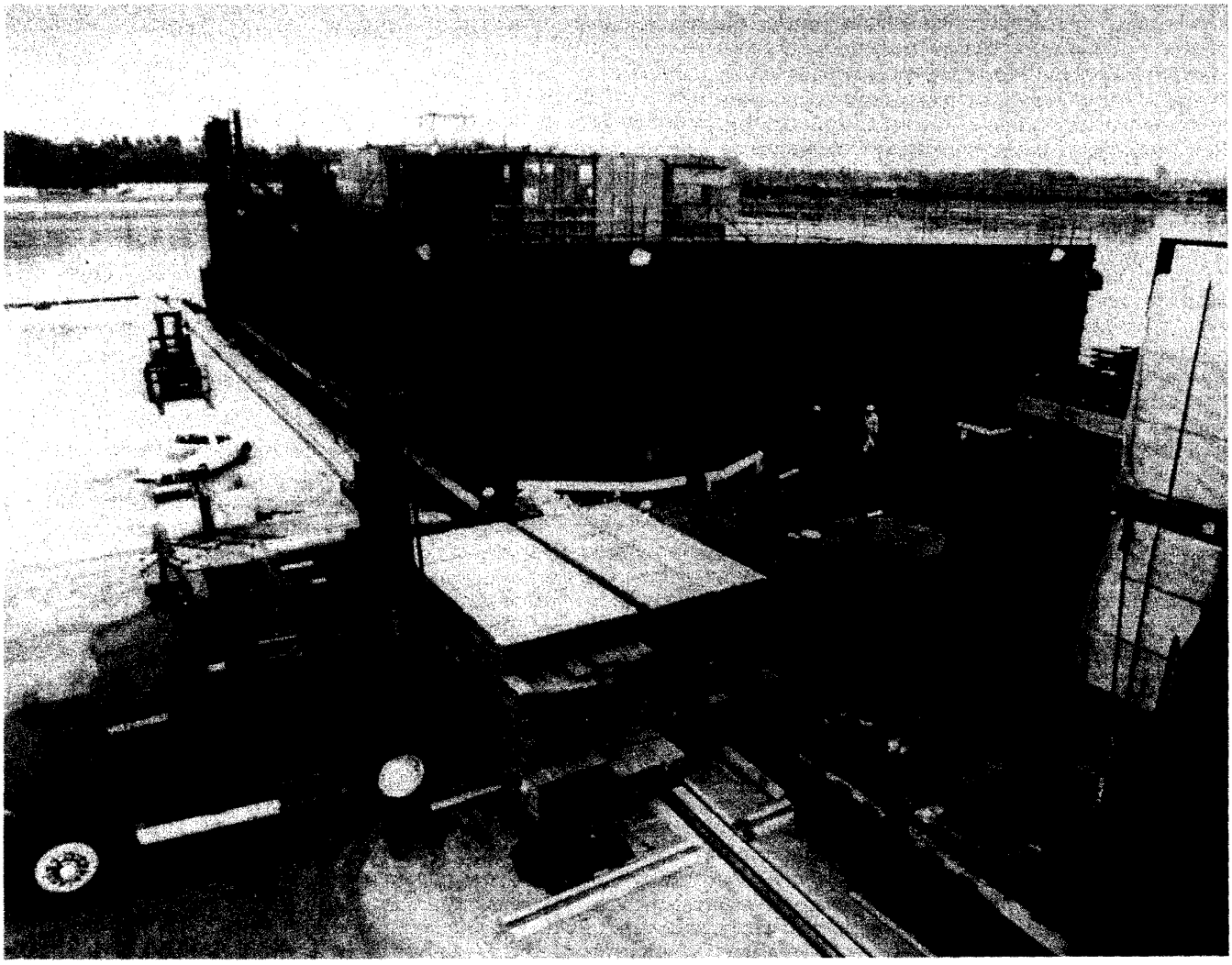
Preference Cargo

Monitoring compliance with the cargo preference laws of the United States is essential in encouraging Federal agencies to maximize the use of U.S.-flag vessels. MARAD is required to report to Congress on compliance with the three major cargo preference laws:

o The Cargo Preference Act of 1904 requires all items procured for or owned by the military services to be carried exclusively on U.S.-flag vessels. (MARAD's oversight responsibilities under the Merchant Marine Act of 1970 [Public Law 91-469] encompass all of the Department of Defense's [DOD] ocean transportation requirements to ensure that at least 50 percent of the 100 percent requirement is met by the use of privately owned U.S.-flag commercial vessels as required by Public Law 83-664.);

o Public Resolution 17 of the 73rd Congress requires that all cargoes generated by the Export-Import Bank (Eximbank) be shipped on U.S.-flag vessels, unless a waiver is granted; and

o The Cargo Preference Act of 1954 (Public Law 83-664) requires that at least half of all Government-generated cargo subject to that law be transported on privately owned U.S.-flag commercial vessels available at fair and reasonable rates. In 1985, the



Shown here, construction materials being loaded. *(Photo: Jerry Bielecki)*

Merchant Marine Act, 1936, was amended to require that the percentage of certain agricultural cargoes moving on U.S.-flag vessels increase from 50 to 75 percent over a 3-year period beginning in April 1986.

To ensure that compliance with cargo preference laws is achieved, MARAD monitors the shipping activities of 52 Federal agencies, independent entities, and Government corporations (see Table 15). Statistics are maintained on a calendar year (CY) basis, or on a 12-month program period, except for Export-Import Bank (Eximbank) statistics, which are maintained over the life of a loan or guarantee. A computerized reporting system enabled MARAD to process 26,500 bills-of-lading for 1989. These documents covered Federal agencies, some DOD contractor shipments, Eximbank, and most Foreign Military Sales Financing (FMSF) Program cargoes.

Agencies Not In Full Compliance With Public Law 83-664

The U.S. Department of Agriculture's (USDA's) Foreign Agricultural Service (FAS) is in violation of the Cargo Preference Act of 1954, 46 App. U.S.C. 1241(b) (Act), in the P.L. 480, Title I program. The Act specifies that cargo preference is to be achieved on a geographical basis. FAS is applying the Act on a global basis and, as a result, MARAD has determined that FAS violated the Act for the program year 1989-1990.

Ocean Freight Differential

The Food Security Act of 1985, P.L. 99-198, amended the Merchant Marine Act, 1936, to require that the U.S.-flag tonnage share of commodity exports under specified food aid programs (Public Law 83-480, Food for Progress, and Section 416 programs) be increased from 50 percent to 75 percent.

The USDA's Commodity Credit Corp. (CCC) continues to be responsible for funding the ocean freight differential (OFD) costs on the first 50 percent share of the cargo that must move in U.S.-flag vessels. MARAD is, in turn, responsible for reimbursing USDA for the OFD costs incurred on the U.S.-flag share of cargo above 50 percent, but not to exceed the additional legislated increment of 25 percent. OFD cost is defined as the difference between the cost of shipping cargo on a U.S.-flag vessel as compared to shipping the same cargo on a foreign-flag ship.

The 1985 Act provided for a USDA/CCC Cargo Preference Year (CPY) of the 12 months beginning each April 1 through March 31 of the following year. The first such accounting period began on April 1, 1986. During the CPY which ended on March 31, 1990, MARAD's share of the OFD, based on its review of all invoices submitted by CCC, totalled $21,526,580. However, this figure does not reflect a complete accounting for the 1989/90 CPY in as much as a final year ending invoice was not received from CCC by the end of this reporting period. In all instances, MARAD has reimbursed USDA for the incremental OFD amounts within the agreed upon time periods.

The average ocean freight differential cost for the 1989/1990 CPY was $17.39 per metric ton, as compared to $31.55 per metric ton in the first year (1986/1987).

The 1985 Act also provides that, if in any fiscal year the total cost to CCC of ocean freight and OFD for the Public Law 480 and Section 416 programs exceeds 20 percent of the value of the commodities exported under these programs plus the ocean freight and OFD incurred on those commodities, MARAD is required to reimburse CCC the amount of such excess. USDA has advised MARAD that the total ocean freight costs experienced on the subject programs during FY 1990 did not exceed the 20 percent cap.

The 1985 amendments to the Merchant Marine Act also require that for each fiscal year after 1985, the minimum tonnage to be exported under Public Law 480 and Section 416 programs shall be the average of the tonnage exported during the base period. The base period for any fiscal year is defined as the five fiscal years, high and low years discarded, beginning with the sixth fiscal year preceding such fiscal year and ending with the second fiscal year preceding such fiscal year. Based on program tonnage figures provided by USDA, MARAD determined that for FY 1990 the total tonnage for the Public Law 480 and Section 416 programs was 7,895,627 metric tons resulting in an overage of 972,960 metric tons.

Department of Defense Programs

MARAD executed an agreement with the Defense Security Assistance Agency (DSAA) in September 1990 for the transfer of excess defense

articles to foreign country recipients approved by the Government in an "unbudgeted" program authorized by the Southern Region Amendment (SRA), Section 516 of the Foreign Assistance Act (FAA). This agreement provides for implementation of monitoring procedures and the infrastructure to ensure compliance from the program participants regarding the use of U.S.-flag vessels in compliance with general waivers which allow for use of the recipient country's flag vessels. Table 15 reflects the extent of U.S.-flag participation. MARAD has also isolated additional "unbudgeted" cargo movements which were made under Special Authority Drawdowns (Section 506 (a), FAA) during CY 1989. These drawdowns were in support of the U.S. Government's hurricane disaster relief to Jamaica and the counter-narcotics assistance to Columbia. U.S.-flag vessels were able to capture 100 percent of this cargo as shown in Table 15.

MARAD is awaiting DSAA concurrence on future Special Authority Drawdowns in addition to two other programs that will also generate ocean revenue for U.S.-flag vessels. These movements fall under the International Narcotics Control Act (INCA) (Section 517, FAA) and the Transfer of Excess Defense Articles (EDA) (Section 573, FAA).

Department of Defense Commercial Contractor Shipments

Agreements have been executed with the Departments of Army, Navy, and Air Force, the Corps of Engineers, and the Defense Logistics Agency (DLA) covering their commercial contracting activities. Under these agreements, MARAD assists DOD and its commercial contractors and suppliers in securing appropriate U.S.-flag shipping service.

The CY 1989 statistics shown in Table 15 include only a portion of the commercial contract cargoes generated by these agencies, since a number of DOD's contracts could not be identified as having an ocean transportation requirement. MARAD has met with the DOD's military services and agencies in an effort to ensure that the Agency is notified of contracts having a preference cargo requirement. MARAD, in conjunction with the DLA, has developed and tested a prototype system which will significantly enhance MARAD's capability to identify and monitor DOD contracts which will generate oceanborne cargoes. This system, when operable, will ultimately enable DOD to provide MARAD with monthly report listings of its contracts where the contractors have acknowledged that ocean shipments will be involved.

Department of Defense Troop Support Cargoes

Tonnages carried by U.S.-flag vessels for troop-support cargoes processed by the Military Traffic Management Command (MTMC) and the Navy's Military Sealift Command (MSC) are not included in Table 15, DOD contractor shipment statistics. DOD troop-support cargoes processed by MTMC and MSC are provided as a separate listing. A breakdown of this tonnage between U.S.-flag privately owned and U.S. Government-owned vessels is included. The data was provided by the MSC, with no independent MARAD verification. Precise revenue data from the MSC was not available.

The DOD Military Services and Agencies did not achieve 100 percent U.S.-flag participation in their commercial contracting activities during CY 1989. A small portion of foreign-flag participation was required due to the non-availability of U.S.-flag vessels due primarily to the volume of cargo moving in a few areas not served by U.S.-flag vessels. Australia is a prime example.

The primary reasons for other shortfalls were inconsistencies previously existing in the Defense Acquisition Regulation (DAR) provisions, the absence of appropriate U.S.-flag provisions in a substantial number of DOD's contracts, and some procuring agencies' inexperience with the administration of cargo preference requirements. These problems have been addressed by recent meetings between MARAD and the DOD contracting commands concerning implementation of the Defense Federal Acquisition Regulation (DFAR), which became effective on April 1, 1989.

At MARAD's initiative the DOD's cargo preference requirements have been deleted from the Federal Acquisition Regulation (FAR) and clearly defined in the DFAR. MARAD continued to work with the DAR Council regarding changes that will permit the Agency to improve contract monitoring and ensure that oversight obligations for the DOD are responsive.

International Cooperative Project's Contractor Shipments

DOD participates in joint procurements, consistent with international cooperation agreements, with U.S. allies. Because the U.S.-flag requirement remains at 100 percent for DOD's involvement in such procurements, actual U.S.-flag participation by statute cannot be less than the percentage relationship of the Government's financial participation in the particular cooperative project. Therefore, U.S.-flag actual performance in these projects can legitimately be less than 100 percent. This concept was confirmed through exchanges of letters between DOD and MARAD in 1982 and 1983. DOD agreed to insert a provision in every Memorandum of Understanding for Cooperative Procurement reflecting this concept for U.S.-flag utilization. None of these sensitive projects are specifically named but their shipping activity is incorporated in the total for this category.

U.S.-flag participation in all such joint procurement projects has exceeded the minimum level specified in the Memoranda of Understanding. Therefore, full compliance with the governing cargo preference statutes is being achieved.

Department of Defense Program Initiatives

MARAD and the Military Traffic Management Command (MTMC) agreed to require household goods freight forwarders to provide MARAD with copies of the ocean bills-of-lading for all shipments of military household goods. This requirement was incorporated in MTMC's solicitation procedures in the latter part of 1989. Table 15 data reflects all movements in international trade reported to the Agency by the International Through Government Bills-of-Lading executed by forwarders in CY 1989. Military household goods are subject to the Merchant Marine Act of 1936, 46 USC 1241 (a) and (b). MTMC has since changed its position with regard to the reporting requirements and has made submission of bills-of-lading by household goods forwarders a voluntary program.

Strategic Petroleum Reserve

At the end of CY 1989, the Department of Energy (DOE) had stored 579.8 million barrels of crude oil for the Strategic Petroleum Reserve (SPR) program. This program was initiated by the Government in 1977 to store 750 million barrels of oil in salt domes along the U.S. Gulf Coast.

The Cargo Preference Act requires the DOE to transport at least 50 percent of the oil in U.S.-flag tankers. In 1977, MARAD and DOE agreed that compliance with the Act would be based on a long ton/mile formula, rather than total tonnage carried, to reflect the broad geographical distances in transporting the oil.

In calendar year 1989, U.S.-flag tankers carried SPR cargo amounting to one billion long ton/miles (56 percent). This carriage generated $5.8 million in revenue, which is below the CY 1988 level of earnings of $6.6 million for 903.5 million long ton/miles.

Export-Import Bank (Eximbank)

In the Eximbank program, total ocean freight revenues doubled from $19.2 million in CY 1988 to $38.2 million in 1989. U.S. operators' earnings increased some 68 percent from $14.5 million in CY 1988, to $24.4 million during CY 1989. The nearly $10 million increase in U.S.-flag carriers' revenues can be primarily attributed to the $6.5 million earnings for cable laying services performed by a specialty vessel. The remaining revenue upturn resulted from new project activities.

Table 15: GOVERNMENT-SPONSORED CARGOES--CALENDAR YEAR 1989[1,2,12,13,14,15]

Public Law 664 Cargoes:

Program	U.S.-Flag Revenue ($1,000)	Total Metric Tons	U.S.-Flag Metric Tons	Percentage U.S.-Flag Tonnage
Agency for International Development (AID):				
Loans and Grants	54,953	1,199,325	754,921	62.9 [3]
P.L. 480 - Title II	137,402	1,762,867	1,377,625	78.1
Section 416	48,512	1,033,249	812,629	78.6
Food for Progress	760	3,079	3,079	100.0
Department of Agriculture:				
P.L. 480-Title I/III	97,891	2,503,196	1,888,166	75.4 [4]
Department of Defense				
Commercial Household Goods	29,056	78,667	78,667	100.0 [5]
Defense Security Assistance Agency (DSAA)				
Foreign Military Sales Financing and				
MAP Merger Programs	36,958	200,168	172,098	86.0 [6]
Southern Region Amendment (SRA)	1,974	6,081	4,165	68.5 [6]
Special Authority Drawdowns	2,013	2,505	2,505	100.0 [6]
Department of Energy:				
Bonneville Power Administration	10	120	19	15.8
Strategic Petroleum Reserve	5,830	2,719,378	1,513,246	55.6 [7]
Other Agencies	1,638	1,482	1,482	100.0
Department of Health and				
Human Services	49	79	67	84.8
Department of Justice:				
Programs	62	92	92	100.0
Department of Interior				
Bureau of Reclamation	77	914	199	21.8 [8]
National Aeronautics and				
Space Administration	106	173	119	68.8
National Science Foundation	3,515	27,843	27,809	99.9 [9]
General Services Administration	1,559	1,376	1,309	95.1
Department of Transportation				
Urban Mass Transportation Administration (UMTA)	943	3,782	2,404	63.6 [6]
Coast Guard	9	35	35	100.0
U.S. Information Agency	425	1,105	662	59.9
Voice of America	387	835	835	100.0
Department of State:				
Foreign Building Office	4,840	18,112	11,362	62.7
Other Agencies	2	2	2	100.0 [10]

Table 15: GOVERNMENT-SPONSORED CARGOES--CALENDAR YEAR 1989 (CONTINUED) [1,2,12,13,14,15]

Public Resolution 17 Cargoes:

	Total Metric Tons	U.S.-Flag Metric Tons	Total Freight Revenue	U.S.-Flag Freight Revenue	Percentage U.S.-Flag
Export-Import Bank	132,983	73,378	$38,212,400	$24,476,202	64.1[11]

Cargo Preference Act of 1904 Cargoes: [12,13,14]

	Total Metric Tons	Metric Tons[12] Dry Cargo	Metric Tons Petroleum	Percentage	Percentage U.S.-Flag Privately Owned Vessels
Department of Defense Troop Support Cargoes					
Military Sealift Command (MSC)					
U.S.-flag privately owned vessels	5,927,617	2,038,774	3,888,843	94.2	
U.S. Government owned vessels	178,538	178,538	0	2.8	
Foreign Flag vessels	186,223	19,932	166,291	3.0	
Total carriage of MSC Troop Support Cargo	6,292,378	2,237,244	4,055,134	100.0	94.2

	U.S.-Flag Revenue ($1,000)	Total Metric Tons	U.S.-Flag Metric Tons	Percentage U.S.-Flag Tonnage
Department of Defense Commercial Contractor Cargoes:				
Army Materiel Command	6,563	31,723	31,290	98.6
Air Force	200	957	758	79.2
Corps of Engineer	3,538	15,089	14,599	96.8
Defense Logistics Agency	2,488	17,399	17,397	99.9
Navy	4,972	12,619	12,097	95.9
Total U.S.-Flag carriage Department of Defense Commercial Contractor Cargoes	17,761	77,787	76,141	97.9
Department of Defense International Cooperative Projects:	1,666	1,417	1,417	100.0

Cash Transfer Cargoes:

Program	U.S.-Flag Revenue ($1,000)	Total Metric Tons	U.S.-Flag Metric Tons	Percentage U.S.-Flag Tonnage
Agency for International Development (AID) Israeli Cash Transfer Program	18,770	1,339,772	704,389	52.6[15]

Table 15: GOVERNMENT-SPONSORED CARGOES--CALENDAR YEAR 1989 (CONTINUED) [1,2,12,13,14,15]

1. The Food Security Act of 1985 (P.L. 99-198) impacted on the P.L. 480 Title I, II, III, the Section 416, and the Food for Progress programs by changing the reporting period from a calendar year to a 12-month period, commencing April 1, 1986 through March 31, 1987 and by increasing the U.S.-flag share from 50 to 75 percent over a 3-year period. The required U.S.-flag share for the current reporting period, April 1, 1989 to March 31, 1990, is 75 percent.

2. Includes civilian agencies, Department of Defense (DOD) Foreign Military Sales Program, and a partial listing of DOD commercial contractor shipments. DOD Troop Support cargoes processed by the MSC are also reported.

3. Includes 161,381 mt of bulk grain which were committed for shipment in CY 1988. This committed quantity was not loaded in CY 1988 because the vessel owners and the grain elevators were unable to complete loading until January 1989, and therefore was not included in AID's compliance figure in the MARAD CY 1988 report which contained an appropriate footnote explanation. MARAD and AID together agreed to report this quantity in CY 1989 with this notice that it does not apply to AID's compliance for CY 1989. Thus AID's actual compliance figure for CY 1989 is 593,539 mt which meets the cargo preference requirement with 57.2 percent of the total of 1,037,944 mt loaded under the CY 1989 program.

4. This program is in violation of the statute as USDA achieved compliance on a "global annual basis" rather than on a "Purchase Authorization basis" as required by MARAD's regulation. USDA's approach to assuring compliance specifically violated the statute's requirement that cargo preference be achieved by "geographic area." The compliance by this program on a "Purchase Authorization basis" is required based on a determination in 1971 by MARAD that this method of compliance achieves the geographic area specification of the statute.

5. This data is based on bills-of-lading submitted by the International Through Government Bill of Lading freight forwarders. It is believed that this information accounts for only 30 percent to 40 percent of the total. This cargo is also subject to 46 APP. USC 1241(a).

6. These programs' tonnages are reflected in metric tons for uniformity only. Cargo preference compliance for those programs involving high cube/low density cargo, is achieved on a gross revenue ton basis. Percentages reflected on a weight tonnage basis for such programs do not necessarily represent the exact extent of the program's compliance with the statute.

7. MARAD accounts for the SPR Program on the basis of long ton miles (LTM). In CY 1989 this program provided a total of 1.89 billion LTM of which U.S.-flag carriers derived 1.068 billion LTM or 56.22 percent.

8. This Agency complied with the statute, as imbalance in favor of foreign-flag shipments was due to the non-availability of U.S.-flag service.

9. A Military Sealift Command (MSC) charter vessel was used in the calendar year by the National Science Foundation (NSF) for service to Antarctica. The MSC vessels are not eligible to lift commercial cargo as a rule. NSF was advised of this restriction. In this case the overall percentage remains over the required 50 percent U.S.-flag requirement.

10. Cargo of government and private agencies that generated less than 25 metric tons of cargo in 1989.

11. Compliance is based on freight revenue only. U.S.-flag participation on a tonnage basis was 55 percent.

12. As MSC records liner cargo in measurement tons, MARAD has converted these to metric tons using a factor of .283 metric tons per measurement ton. MARAD is unable to verify the troop support cargo data, but merely reflects that information provided by MSC.

13. DOD's contracting activities are subject to the Cargo Preference Act of 1904 (10 USC 2631). P.L. 664 impacts 10 USC 2631 requiring that privately owned U.S.-flag vessels must be used for at least 50 percent of DOD's 100 percent U.S.-flag requirement. DOD's contractors must use privately owned U.S.-flag commercial vessels for 100 percent of their cargoes since such cargoes are processed within the commercial transportation environment.

14. Data reflects only a partial listing of DOD's contracting activities due to the time required for DOD to update its active contracts to include the full U.S.-flag shipping provisions contained in the FAR and the DFAR.

15. While statistics are shown for CY 1989 shipments, Israeli cash transfer program is maintained on a fiscal year basis. Since the Government of Israel (GOI) failed to execute its side letter with AID commencing on October 1, 1989, the figures represent only a nine month period off CY 1989, (January-September). On a fiscal year 1989 basis, GOI shipped 51.0 percent on U.S.-flag vessels:

	U.S. Flag Revenue (1,000)	Total Metric Tons	U.S. Flag Metric Tons	Percent U.S.-Flag Tonnage
AID/Israel Cash Transfer FY89	20,350	1,514,289	772,555	51.0

Chapter 5
Port and Intermodal Development

The Maritime Administration (MARAD) provides technical assistance in port and intermodal planning and operations to State and local port authorities, private industry and foreign governments. It also develops contingency plans for the utilization of ports and port facilities to meet defense needs in time of national emergency or war. (Also see Chapters 8 and 9.)

Congressional Report on Public Ports

The Secretary of Transportation is required by Public Law 96-371 to submit a report to Congress on the status of public ports of the United States. This report examines the composition of the port industry, highlights issues and problems, and reviews the importance of U.S. ports to the Nation's economy and military security. A combined report for calendar years 1988 and 1989 was transmitted to Congress.

Port Access

MARAD continued in FY 1990 to promote the use of real-time vessel navigation simulation by the U.S. Army Corps of Engineers and others for testing alternative port channel widths and configuration designs to reduce the cost of maintenance dredging and deepening projects in U.S. harbors. Also during the year, MARAD initiated a multiagency, Departmental research effort in cooperation with industry to study landside transportation access problems at general cargo port terminals in the United States.

Technical Assistance to the Port Industry

MARAD continued to provide technical assistance to the port industry through two major programs and several projects dedicated to strengthening the role of U.S. ports in economic development and national defense. This involved the development of various analytical studies, reports, methodologies, and information systems for improving planning, productivity, and the general efficiency of port management and marine terminal operations. These technical projects were cost-shared by MARAD and appropriate State or local port authorities and private sector organizations.

Cargo being loaded at Norfolk International Terminal. ***(Photo: Port of Hampton Roads)***

Port and Intermodal Planning Program

The Agency's FY 1990 port and intermodal planning activities included cooperative research studies with public port authorities, Government agencies, trade associations and the private sector, port planning and management information systems; and financial and economic impact analysis projects. Emphasis continued to be placed on developing generic analytic trade studies usable by any port or region.

Projects under this program which were completed, continued, or initiated in FY 1990 are listed below:

Projects Completed	Description
MARAD Report to Congress on Ports	Completed the ***Report to the Congress on the Status of U.S. Public Ports, 1988-1989.***
Regional Economic Impact Model	Completed development of the MARAD Regional Input/Output model for use in-house to estimate port impacts based on user-defined regions which may reflect inland cargo origins and destinations.
Upper Mississippi River Transportation Economic Study Implementation	Completed the Upper Mississippi River Transportation Economic Study. The Steering Committee, a consortium of the five Upper Mississippi River States, MARAD, and the Department of Agriculture, cooperated in the implementation of the model and its capabilities for measuring the efficiencies of river operations on the Mississippi or other navigable river systems.
Transportation Research Board (TRB) Task Force on Marine Transportation	Participated in Task Force committees engaged in a review of Transportation Research Board policies and Standing Committee activities in the area of marine transportation as it interacts with other transport modes.
Landside Port Access	Prepared a report for the Maritime Administrator which examined landside access to selected ports by rail and highway.
National Transportation Strategic Planning Study	Participated in a Departmental analysis of national transportation infrastructure and prepared the chapter on ***Water Transportation and Ports*** for inclusion in the study report.
Departmental Transportation Policy Review	Participated in Departmental study groups and public sessions which were integral parts of the policy review requested by the Secretary of Transportation for intermodal and modal requirements for the next decade.
27th International PIANC Congress	Presented a co-authored paper, ***Changing Directions for Traditional Ports,*** at the 27th International Congress of the Permanent International Association of Navigation Congresses (PIANC) in Osaka, Japan.

Ongoing Projects	Description
Ports and the U. S. Economy	Continued a revision of the publication ***What Ports Mean to the U. S. Economy.*** Used the MARAD National Input-Output Model to derive updated impact data and statistics.
Port Expenditure Survey	Continued data collection and analysis of an industry-conducted survey to update the MARAD report, ***United States Port Development Expenditure Survey,*** which profiles major expenditures for new construction, modernization, and rehabilitation.
Port Facilities Data Base	Continued operating, maintaining, and updating MARAD's port facility inventory for ocean and inland river ports through field surveys. Assisted in integrating the database into the Agency's Maritime Statistical Information System.
U.S. Stevedoring Industry Study	Continued to develop a national update and expansion of the MARAD report, ***The Stevedoring and Marine Terminal Industry,*** with the National Association of Stevedores.

Projects Initiated	Description
Assessment of Landside Port Access	Began a comprehensive Departmental investigation of landside transportation access to the ports of the nation. As lead Agency, MARAD established a working group that includes the participation of the Federal Railroad Administration, the Federal Highway Administration, the Research and Special Projects Administration, and port industry representatives.
TRB Port Access Study	In conjunction with the above, executed a contract with the Transportation Research Board of the National Research Council, to undertake an assessment of landside port access issues and to recommend strategies for correcting deficiencies.
National Port Assessment	Began a survey of U. S. port facilities to update the ***Port Facilities Inventory*** and began preparation of the ***National Port Assessment, 1990-1995.*** Collected additional data on terminal capacity and intermodal container transfer facilities for the assessment.
Port Industry Cooperative Research Program	Began discussions with the port industry, through the American Association of Port Authorities, on a proposal to establish an industry/Government cost-shared program

	to carry out research projects aimed at improving port industry productivity and management efficiency.
Public Port Financing	Initiated a cooperative program with the Finance Committee of the American Association of Port Authorities to update the MARAD study of ***Public Port Financing in the United States.***
Port Facility Data Development Cooperation	Initiated discussions with the Corps of Engineers' Navigation Data Center regarding the potential for joint efforts in collecting, processing, and maintaining data on port facilities at coastal, lake, and river ports in the United States.

Port and Intermodal Operations Program

This cost-shared program helps improve productivity in the operation of facilities, equipment, and waterways. The program also provides planning for emergency operating conditions at ports in time of crisis or war. Projects completed, ongoing, or initiated in FY 1990 are described below:

Completed Projects	Description
Intermodal Equipment Inventory	Prepared the MARAD report, ***Inventory of American Intermodal Equipment--1990,*** a comprehensive, statistical review and classification of equipment owned by marine carriers and container leasing companies operating in the United States.
Overweight Marine Containers	Prepared a response to the Federal Maritime Commission regarding two petitions concerning overweight containers as vehicles on the Nation's highways.
Double-Stack Container Rail Systems	Completed a joint study of ***Double-Stack Container Systems: Implications to U. S. Railroads and Ports,*** with the Federal Railroad Administration which examines the potential for double-stack container rail usage in domestic transport.
Truck Related Initiatives Working Group	Participated in a National Transportation Policy Working Group which evaluated such truck initiatives as safety and regulation, truck and container size and weight, and user fees; etc.

Port Safety and Environmental Protection Reports	Prepared and distributed four quarterly issues of the report ***Port and Shipping Safety and Environmental Protection.***
Marine Terminal Training Inventory Report	Prepared a comprehensive report on available domestic and international training programs for marine terminal managers.
Annual Maritime Terminal Training	In cooperation with the American Association of Port Authorities and the National Association of Stevedores, developed and held the first management training course at the U.S. Merchant Marine Academy for marine terminal superintendents.

Panel participants and attendees at the first Marine Management Facilities Seminar held at the Merchant Marine Academy. ***(Photo: USMMA)***

Ongoing Projects	Description
Interagency Environment and Safety Liaison	Maintained liaison with the U.S. Coast Guard, Environmental Protection Agency, State Department, U.S. Army Corps of Engineers, and other agencies on matters pertaining to activities of the National Shipping Coordinating Committee, the Chemical Transportation Advisory Committee, and the Towing Safety Advisory Committee.
Interagency Group on Terrorism	Continued to serve as a member of the Department of State's Inter-Departmental Group on Terrorism which coordinates international training activities to combat terrorism. The Group prepares a report to Congress each calendar year.
Port Community Trade Information Exchange System	Continued work on Phase II of the cooperative agreement with the Golden Gate Ports Association to develop a generic design of a port community trade information system which linked with the U.S. Customs' Automated Commercial System.

Projects Initiated	Description
Inventory of Coal Export Facilities	Began the research to update and revise the periodic publication ***Existing and Potential Coal Export Loading Terminals.***
Narco-Terrorism Conference	In cooperation with the Department of State, U.S. Coast Guard, U.S. Customs, FBI, Maritime Security Council, and the International Association of Airport and Seaport Police, commenced planning the program for a series of regional seminars on maritime terrorism and drug interdiction.

Chapter 6
Technology Assessment

The Maritime Administration's (MARAD) Technology Assessment program assesses activities related to the development and use of water transportation technology and systems for commercial, economic, and national security purposes.

MARAD evaluates current maritime developments and future trends involving such interrelated areas as trade, markets, intermodal transportation, emerging technologies, economic developments, fuels and materials, and national defense requirements. The Agency also identifies and stimulates the transfer of advanced technologies from other areas into the marine field.

Technical and Program Studies contracts, interagency transfers, and cooperative agreements awarded in FY 1990 are listed in Appendix III.

Cargo Handling

The Cargo Handling program assesses advanced materials handling, automation, data processing, and communications technologies to reduce the cargo-handling and documentation costs of intermodal shipments between water and rail or motor carrier transportation modes.

During FY 1990, MARAD continued its stimulation and support of industry research and development through the Cargo Handling Cooperative Program (CHCP). Four U.S.-flag carriers, American President Lines, Ltd. (APL), Matson Terminals, Inc., Sea-Land Service, Inc., and Crowley Maritime Corp., carried out joint projects designed to increase cargo handling productivity through the introduction of new technology.

The successful test and evaluation of a prototype technology to determine remotely the exact location in a terminal of container handling equipment was completed at Matson's Sand Island Terminal in Honolulu. The system was successful in tracking a straddle carrier, equipped with transponder, as it worked in a designated area of the terminal. The test will be expanded in 1991 to equip and track additional straddle carriers (up to 30) and include the entire terminal.

Phase I testing of video imaging technology for correctly positioning a chassis or container under a crane was completed with good results. The development of control software and a prototype system will continue in 1991.

The draft standard for the use of radio frequency equipment identification (RFID) or automated equipment identification (AEI) was accepted by the American National Standards Institute and is in review by the International Standards Organization. Standards based on the one initiated by the CHCP have been accepted by the Association of American Railroads and American Trucking Association.

Testing of infrared imaging technology for container inspections at Sea-Land's Baltimore Terminal proved conclusively that the technology is not suitable for that application. Work will continue to automate the inspection process.

Testing of clipboard type computers utilizing optical character recognition (OCR) were tested at Crowley's Jacksonville, FL, Terminal as a means of assisting container inspectors in performing their work more accurately and, at the same time, providing automated data capture. Two different pieces of equipment were used by the Crowley inspectors. The OCR technology did not prove satisfactory and the size of the units was an impairment to free movement during inspection.

A study on the causes and prevention of tire damage and theft also was completed during the year. Several technologies, both hardware and software, were evaluated for their effectiveness in reducing the cost of replacing and repairing tires. Several tests of these technologies will be conducted in 1991.

As a result of earlier work accomplished in the Cargo Handling Program, in FY 1990:

- Matson, Sea-Land, and American President Lines were installing RFID systems.
- Crowley and Sea-Land were installing voice recognition systems for lane and yard inspections.
- Crowley was installing an imaging system to capture data from the Trailer Interchange Report (TIR).

o Sea-Land was using the Terminal Operations Simulation Program to analyze the operating efficiency of a number of their terminals throughout the world, and it was installing a hand-held computer system for container yard inventory.

A joint project with the Defense Logistics Agency was begun to improve rail and container transportation at its six depots. The study will recommend commercially compatible transportation systems to meet peacetime and mobilization requirements.

Effective Manning

The Effective Manning Program involves operations research and analysis to increase the productivity of shipboard personnel by rationalizing manning structures and improving the quality of life through joint labor and management efforts.

A study, ***Shipboard Crew Fatigue, Safety, and Reduced Manning,*** was completed in FY 1990. It reviewed fatigue research and investigated causes of stress and fatigue through study and observations onboard vessels. It also developed a subjective survey for use in gathering data on the occurrence of fatigue. The study included examples of how reduced crew sizes may exacerbate the effects of fatigue.

A 2-year U.S. Coast Guard/MARAD sponsored study, ***Changes in Crewing Ships: A Safety Assessment,*** was conducted by the Marine Board of the National Research Council. Foreign and, to some extent, U.S. ships are experiencing revolutionary trends in crew size reduction. The study reviews these trends and their effects on safety, concluding with a number of recommendations on how to assess safe levels of crewing and changes needed in statutes and regulatory approaches to improve safety.

Fleet Management Technology

The Fleet Management Technology program involves the development and utilization of innovative techniques to ensure the most productive deployment and utilization of ships and equipment to maximize shipper service and carrier competitiveness in a commercial business environment.

Under the authority of a Memorandum of Understanding with the National Oceanic and Atmospheric Administration (NOAA), implemented in 1989, a project was initiated in FY 1990 to provide improved ocean weather observation data used in validating the results of NOAA's weather forecasts. The new weather reporting program will provide quality control checks at the point of data entry, thereby improving overall data accuracy. Another major task will involve automatic acquisition and recording of shipboard data, including weather data and other operational data.

An integrated marine operations decision support system completed this fiscal year incorporates functions to assist shipboard officers as well as shoreside staff in the efficient management and operation of a fleet of vessels. The system includes capabilities for vessel sea-keeping, optimal weather routing, shipboard data logging, and port operations planning. A report on the project and a videotape will be available in early FY 1991.

Development of an expert diesel engine maintenance system for a low-speed diesel engine propulsion system continued in FY 1990. The system, installed aboard four containerships operated by APL, evaluates engine performance and predicts maintenance problems. It is scheduled to be completed in FY 1991.

Government Shipping

This program seeks to develop lower cost transportation services for carrying cargo preference shipments for Government agencies such as the Department of Agriculture (USDA) and the Agency for International Development.

During the year, MARAD entered into a Memorandum of Understanding with the USDA's Office of Transportation to establish a mechanism for cooperation on improving efficiency and reducing transportation costs of USDA preference cargoes.

In FY 1990, ***Containerized Bulk Export Shipment of Wheat Flour,*** a prototype test of a 3/8 scale model of a containerized system for transporting wheat flour in bulk, was completed. The technical and economic feasibility of the system was demonstrated, and a full-scale test was under consideration.

Maritime Safety

The Maritime Safety program assesses advanced vessel navigation and communication systems, operational procedures, and maintenance policies which enhance maritime safety while enabling vessels to operate more efficiently and meet Federal standards for safety and air, water, and noise pollution both in port and at sea.

During FY 1990, MARAD continued working with the U.S. Coast Guard to develop procedures for the modular approach to analyzing ship controllability. Propulsion model tests were completed for bare hull, and separately with propeller and then rudder, to determine interference effects. Construction and testing of a series of smaller bare hull models were initiated. A complete procedure with data for accurate predictions of maneuverability was expected to result.

Shipboard trials of a ***Shipboard Contingency Planning System*** were completed during the year. The system of computer programs is an expert advisor for damage contingency situations. It provides the master with information on structural and stability characteristics in damaged conditions and, using an expert system, advises of options. The trials were successful and suggest high utility for the system.

During this fiscal year, a cooperative agreement with the Society of Naval Architects and Marine Engineers to study the development of a method for standardizing the exchange of hydrodynamic coefficients for mathematical models was initiated. These models will be used by designers and ship-handling simulators to predict the trajectories of ships for design and training purposes.

MARAD and the Coast Guard also continued work on a joint project, ***The Role of Human Factors in Marine Casualties.*** This project, under contract to Dynamics Research Corp., has led to development of a standardized list of human-factor contributory causes of accidents. The taxonomy and investigative approach developed was tested through training of U.S. Coast Guard personnel and implementation during accident investigations.

A contract was awarded in FY 1990 to C.R. Cushing & Co. to study the applicability of the free-fall lifeboat on U.S. vessels. Ship and lifeboat design options, economic and engineering, and regulatory difficulties will be reviewed.

Maritime Technology Policy

This program provides for participation in the basic activities of the Marine Board and the Transportation Research Board. It utilizes the technical advisory role of the National Research Council on policy issues of national significance to both industry and Government concerning the water transportation community.

Under the program, in FY 1990 MARAD continued a study project with the Transportation Research Board to examine the relationship between deregulation and technological innovation in the intermodal container shipping industry. Several major issues were identified for detailed investigation by the study committee. The final report is expected in FY 1991.

A cooperative agreement with the Transportation Research Board was initiated to assess marine transportation strategic planning processes for the 21st century. Many components of the marine transportation community will evaluate strategic planning processes and determine those processes most appropriate for each component.

Military Sealift

The Military Sealift program involves development of more efficient and effective waterborne transportation services for the carriage of military cargoes by commercial vessels to provide adequate logistical support to military operations in cooperation with the U.S. Navy.

Four projects were completed in FY 1990:

o ***Merchant Marine Mobilization Manpower Assessment.*** This study examines a variety of methods and approaches for achieving adequate manning of merchant vessels for defense-related needs during a mobilization.

o ***The Potential Military Application of Commercial Inter-***

modal Equipment Advancements - An Alternative to the Stockpiling of National Defense Features.

o ***Familiarization Training Videotape for RRF Vessels.*** This project resulted in production of a videotape for indoctrinating and training experienced engineering officers to operate equipment and machinery unique to one class of Ready Reserve Force (RRF) vessels.

o ***Expansion of Ship Repair Capabilities to Support Mobilization Requirements.***

Work also continued on the cooperative effort with the David Taylor Research Center to perform computer simulations or interactive analyses for a mono-hull displacement-type vessel that would be highly efficient in a sealift operating role.

A project involving Maintenance and Repair of Ready Reserve Force Propulsion Boilers and Diesel Engines continued in FY 1990. Various machinery conditions and operational problems were documented from the activation of 56 RRF vessels. Various diagnostic techniques and maintenance and repair procedures were evaluated in response to these problems. The final report was expected during fiscal year 1991.

A Memorandum of Understanding was initiated with the Military Sealift Command to cooperate in increasing the defense relevancy and military logistic support capability of commercial maritime resources and assets. The first task will be implementing a program under which U.S.-flag commercial carriers may acquire from the Government, at nominal costs and for agreed to periods of time, SEA-SHED systems for their use in day-to-day commercial services.

Ship Design

This program investigates and evaluates ship structures and hydrodynamics technologies fundamental to vessel design and performance in a seaway. Ship structural projects seek solutions for structural problems affecting ship safety and survivability, develop new structural materials, and improve structural design and fabrication procedures. They are cost-shared with, and jointly administered by, several other Government agencies with contracts awarded by the U.S. Coast Guard on behalf of the interagency Ship Structure Committee.

Full-scale ship maneuvering and resistance tests and data analysis for the tanker EXXON PHILADELPHIA were completed in FY 1990. The tests validated simulation tools useful for improving tanker safety through better maneuvering performance and for improved ship operations.

A national conference and workshop on "Ship of the Future-2000," involving 11 separate working committees which conducted numerous individual meetings, was held on May 14-16, 1990. Projected technology developments, innovations, and market changes for the years 2000-2025 were analyzed. Potential ship designs for this period also were reviewed. The technology development needed to achieve these designs was recommended by the broad representation of industry and Government representatives who participated.

Ship Performance

The Ship Performance Program involves the study and development of ship design innovations and "add on" systems that can be incorporated on U.S.-flag vessels to improve operational performance and reduce maintenance costs, power consumption, and labor costs.

In FY 1990, a study on ***Vessel Productivity Assessment*** was completed. Recent worldwide productivity improvements from ship design and operational innovations were reviewed and their applicability to U.S. vessels was considered. The potential economic effects for containership and tanker example cases also were evaluated. Many of the innovations are dramatic improvements and related to automation or operational changes often resulting in reduced crew.

Significant progress was made in FY 1990 in the design and development of the Shipboard Piloting Expert System project. The system, which is being developed with an advanced integrated bridge system, will be installed and tested aboard the tanker EXXON BENICIA. The project is a joint effort between MARAD, the U.S. Coast Guard, NOAA, Rensselaer Polytechnic Institute, Exxon Shipping, and Sperry Marine.

Technology Transfer

The Technology Transfer Program involves development, collection, and dissemination of technological information relevant to domestic and international water transportation, including foreign sources. This program includes operation of the Maritime Technical Information Facility located on the grounds of the U.S. Merchant Marine Academy at Kings Point, NY.

University Studies

During FY 1990, MARAD designated four universities as National Maritime Enhancement Institutes in recognition of their ability to provide leadership in solving problems confronting the maritime industry. The National Maritime Enhancement Institutes (NMEI) are the University of California at Berkeley, the Louisiana State University, the Massachusetts Institute of Technology, and Memphis State University. Each of the institutes is either part of a regional Department of Transportation University Transportation Center or university consortium with multimodal, multidisciplinary research capabilities. The designation of NMEI was authorized under Public Law 101-115.

MARAD entered into cost-shared cooperative agreements with two of the institutes. The University of California at Berkeley will conduct a research project on "Inspection and Maintenance Impact on Safety and Reliability of Tanker Structure," and the Louisiana State University will lead a cooperative project on "Innovative Breakbulk Technology and Its Impact on Waterfront Utilization." Both projects include industry participation.

Waterway Development

The Waterway Development Program involves application and utilization of advanced simulation methodologies to better understand the interaction of vessel maneuvering capabilities and channel configuration in harbors, rivers, and canals.

The Computer Aided Operations Research Facility (CAORF), a full bridge ship simulator, operates as a privatized facility at the U.S. Merchant Marine Academy in Kings Point, NY. During the year, CAORF completed a simulation study of the proposed modifications to the Baldwin Channel (San Francisco, CA) for the U.S. Army Corps of Engineers.

Chapter 7

Maritime Labor and Training

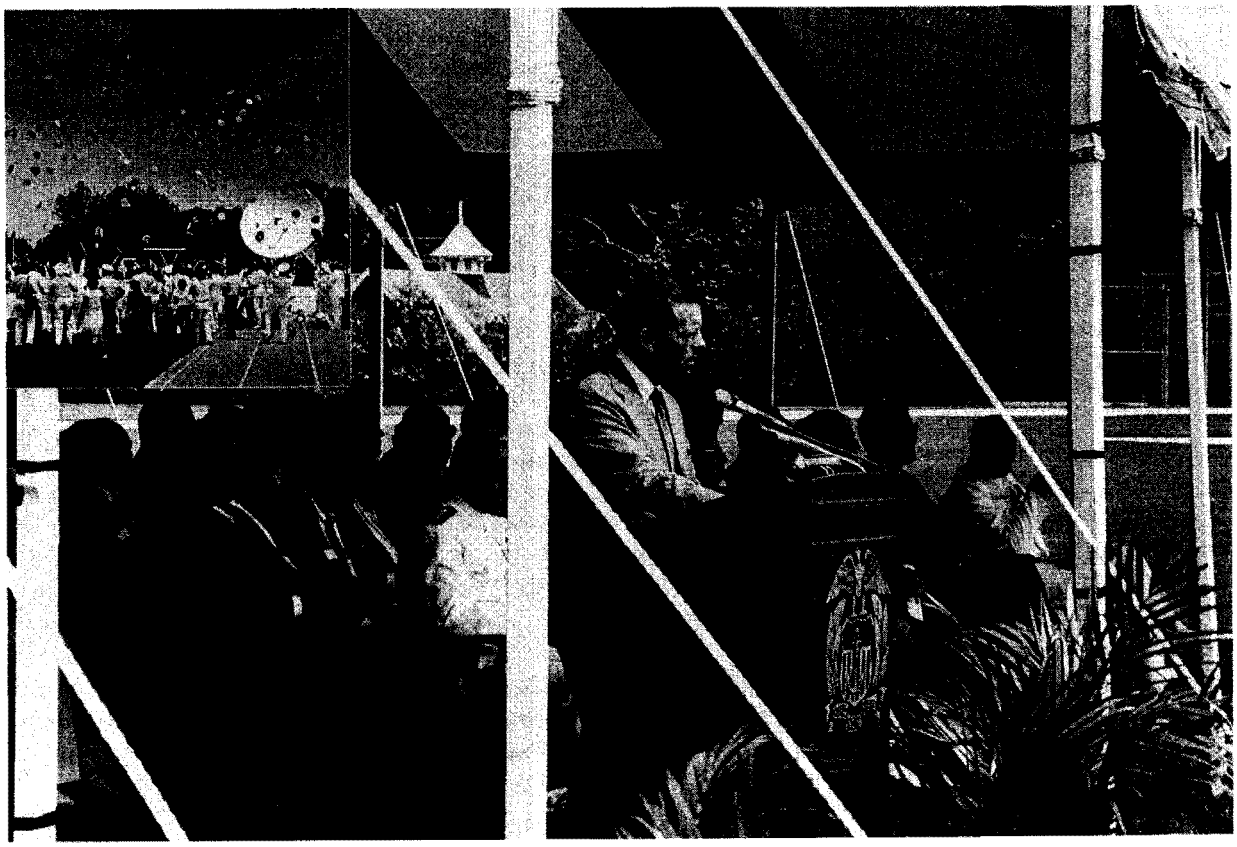
The Maritime Administration (MARAD) supports the training of merchant marine officers and supplemental training related to safety in U.S. waterborne commerce. The Agency also monitors maritime industry labor practices and policies in conjunction with national and international organizations, and promotes consonant labor relations.

U. S. Merchant Marine Academy

MARAD operates the U.S. Merchant Marine Academy at Kings Point, NY, which trains young men and women to become officers in the American merchant marine. In addition to classroom training, midshipmen are required to spend a year at sea on American-flag vessels.

Graduates receive U.S. Coast Guard licenses as deck or engineering officers, or both, and Bachelor of Science degrees. U.S. citizen graduates are obligated to apply for, and accept if offered, commissions as officers in an armed service of the United States.

The Class of 1990 comprised 76 third mates, 112 third assistant engineers, and 11 graduates who completed the dual deck/engine program. Eleven women were among the graduates. Within 90 days after commencement, approximately 93 percent of the 199 graduates had already found employment in the maritime industry, aboard ship or ashore, or were serving on active duty in the U.S. military services.



After remarks by Secretary of Transportation Samuel Skinner, hats of the Kings Point Class of 1990, (inset) fly. ***(Photo: USMMA)***

Average enrollment at the Academy during the year was 840.

At the beginning of the 1990-91 school year, the regiment of midshipmen included 29 women, 21 of whom were scheduled to graduate in June 1991.

Members of Congress nominated 1,994 constituents for the class of 1994 and a total of 284 appointments were made in FY 1990. All classes of the Academy are under mandatory service obligation contracts to serve 5 years in the U.S. merchant marine or in maritime-related employment, maintain a Reserve Commission for 8 years, and renew their 5-year U.S. Coast Guard licenses at least once after graduation.

The Academy is accredited by the Middle States Association of Colleges and Schools. The Marine Engineering Systems curriculum is accredited by the Accreditation Board of Engineering and Technology.

The Department of Transportation's environmental audit team reviewed the U.S. Merchant Marine Academy in FY 1990 and it was found to have acceptable conditions. A more detailed discussion is included in Chapter 10.

State Maritime Academies

MARAD provides financial assistance to six State maritime academies in accordance with the Maritime Education and Training Act of 1980 (Public Law 96-453). The law provides for the training of merchant marine officers to meet the national objectives stated in the Merchant Marine Act, 1936, as amended.

The State academies are located at Vallejo, CA; Castine, ME; Buzzards Bay, MA; Traverse City, MI; Fort Schuyler, NY; and Galveston, TX. These academies graduated 371 students in 1990.

In addition to U.S. Coast Guard licenses, graduates of the five seaboard academies receive Bachelor of Science degrees (associate degrees are awarded by the Great Lakes Maritime Academy in Traverse City, MI). In 1990, 53 graduates accepted active duty commissions in the armed services.

After graduation, 88.9 percent of the graduates found employment in the maritime industry aboard ship or ashore, or were serving on active duty in the U.S. Navy or Coast Guard.

As a condition to providing annual Federal student incentive payments of $1,200 each, Public Law 96-453 requires a mandatory 3-year service obligation in the U.S. merchant marine for all subsidized students. Under this same law, MARAD currently provides training vessels to the five salt-water academies for use in at-sea training and as shoreside laboratories.

The former cargo vessel, MORMACTIDE, was converted to a training ship, renamed EMPIRE STATE VI, was transferred to the State University of New York Maritime College and completed her first training cruise.

Cadets from the six State maritime academies, as well as the U.S. Merchant Marine Academy, participated in the first Soviet-American training cruise as part of "Soviet-American Sail 1990." This cruise was conducted on the Soviet Tall Sail training ship, DRUZHBA, assigned to the Odessa Maritime Academy. From Odessa, the vessel visited ports in Turkey, North Africa, the Canary Islands, Bermuda, Baltimore, and New York. The DRUZHBA's arrival in Baltimore marked the first time in 14 years that a Soviet tall ship had visited the United States.

The California Maritime Academy appointed Dr. Mary Lyons president in September 1990. Dr. Lyons, who was also appointed Rear Admiral in the U.S. Maritime Service, is the first woman appointed to the top position in any maritime school.

Supplemental Training

MARAD's supplemental training program provides classroom instruction and hands-on training in maritime firefighting, diesel engineering, and defense readiness. In fiscal year 1990, MARAD trained 1,888 maritime personnel in ship and barge firefighting. Participants were largely U.S. seafarers, but included others concerned with maritime fire safety such as Coast Guard personnel and port-city professional firefighters.

MARAD-sponsored basic and advanced firefighting training is offered at the Agency's fire school at Swanton, OH, the U.S. Navy-Military Sealift Command/MARAD fire-training facility in Earle, NJ, and the U.S. Navy fire-training installation at Treasure Island, San Francisco, CA. A fee of $25 per student training day is charged for MARAD fire-training courses.

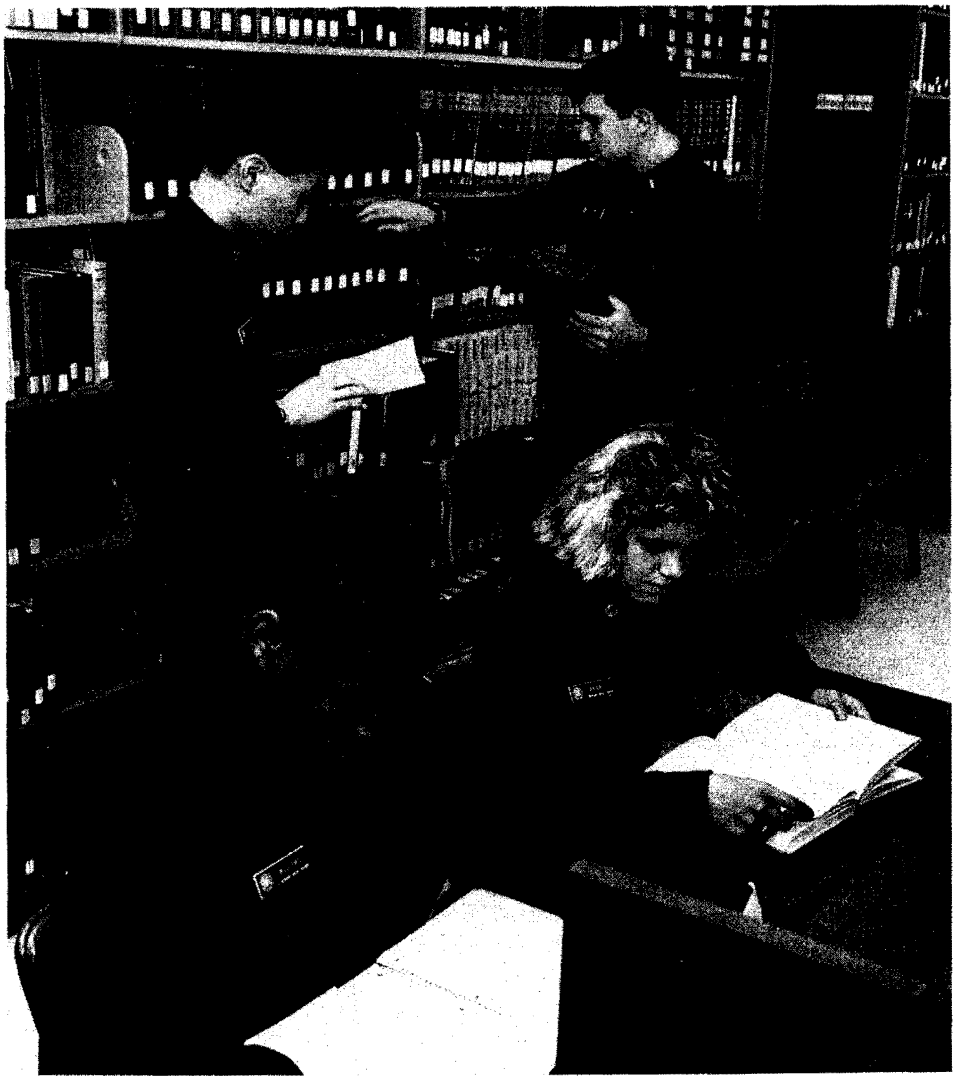
FY 1990 marked the start of advanced fire fighting for MARAD students holding U.S. Coast Guard licenses. This is in conjunction

with the U. S. Coast Guard's requirement, effective December 1, 1990, that licensed merchant marine officers complete an approved basic and advanced firefighting training course. It also satisfies International Maritime Organization (IMO) standards on marine firefighting training that have been approved by most seafaring countries.

During the year, 86 students completed the 4-day basic course and 21 completed the 5-day advanced course. Additionally, 134 Coast Guard personnel completed special shipboard firefighting training at the Toledo Fire School tailored to their specific needs.

In support of the marine industry from the port side, shipboard firefighting training is offered to municipal firemen from waterfront communities who may be called on to fight shipboard fires. One hundred-one firemen participated in the 2-day training at the Toledo Marine Fire Training Center.

Sixty-six shipmaters participated in the ongoing Master Mariners Readiness Training Course funded by MARAD and conducted at the Merchant Marine Academy. The course provides currently employed captains and their prospective replacements with instructions governing joint U.S. Navy/U.S. merchant marine operational practices and procedures. In addition, two maritime industry radio officer schools under contract to MARAD provided specialized defense communications training for ship officers.



Midshipmen at study in the Kings Point Library. ***(Photo: Brian Ballweg)***

The Agency's Continuing Education Marine Diesel Program conducted at Kings Point, NY, continued to provide industry personnel with special short courses on the operation and maintenance of diesel power plants.

Labor Relations

Longshore

An "industry preservation group," established in June 1989 began meeting in March of 1990 to formulate recommendations toward achieving an Atlantic and Gulf Coasts International Longshoremen's Association (ILA) agreement. This group was established when waterfront management agreed to extend the then current contract through November 30, 1990. The extension was agreed to because no progress was made during the 1989 negotiations and the ILA would not consider concessions demanded by employers. The recommendations were given to the full negotiating body (Boston Shipping Association, the New York Shipping Association [NYSA], the Council of North Atlantic Shipping Associations, the South Atlantic Employers Negotiating Committee, and top leaders of the ILA).

The South Atlantic employers withdrew from the bargaining group and joined management groups from the Gulf Coast as observers. Employer negotiators for the master contract talks represented ports from Virginia northward with the remaining southern participant being the Southeast Florida Employers Port Association. Employers in the Gulf ports maintain a separate bargaining unit which in the past has adopted agreements similar to those negotiated with East Coast employers.

Differing work environments in the Southeast and Gulf from the Northeast were causing employers in the South Atlantic and Gulf to be cautious on agreeing to actions the ILA will implement in the North. In the past, Southeast and Gulf employers followed the lead of the Carrier Container Council and the NYSA, but labor priorities differ among the Gulf, North Atlantic, and South Atlantic ports.

In the Port of New York and New Jersey, unemployed dockworkers were a major concern, largely because of the impact on the Guaranteed Annual Income Program (GAI), during this reporting period. The situation improved considerably, however, when about 25 percent of the organized dockworkers accepted generous pensions. Vessel operators, as well as workers benefitted, because of reduced labor costs for fringe benefits and savings to the GAI.

The port's competitive posture was also improved during FY 1990, as a result of a reduction in the tonnage assessment fee charged to vessel operators. This fee is adjusted to fund longshore benefit programs.

Waterfront employers and leaders of the dockworkers union in Baltimore resolved the bad-weather issue (working in the rain). Management now decides when work must stop for bad weather. In the past the decision was made by the union gang leader, with the crew receiving pay for the first 4 hours if work was stopped. Longshoremen still have the right to refuse to work but receive no pay and can be replaced.

Additionally, a significant change occurred in the Port of Baltimore with the reduction of checker jobs. The local contract adopted in late January 1989 after a 3-day strike forced deep cuts in checker jobs.

During the reporting period, Benny Holland, a 30-year member of the ILA, who was district secretary-treasurer since 1978, succeeded J.H. "Buddy" Raspberry as president of the ILA's South Atlantic and Gulf Coast District. The Gulf district's primary problem is competition from non-union stevedores. Intermodalism is shrinking the cargo base over which the ILA and non-union stevedores are competing for work in the Gulf. Negotiators in this ILA district are wrestling to balance master and local contract benefits to its members while still enabling their Gulf employers to remain competitive with non-union stevedores. This joint awareness by management and labor to the importance of remaining competitive began in 1986. At that time wage and benefit concessions reduced the rate at which non-union stevedores are winning work away from the ILA.

Pre-negotiations on the master agreement stalled when the Department of Justice filed a civil racketeering lawsuit in February 1990 against officials of six New York and New Jersey ILA locals, including its President, John Bowers. The suit seeks to bar Bowers and 25 others from holding office. The lawsuit was removed as an obstacle to negotiations when the U.S. District Court of Manhattan, scheduled trial for January 7, 1991. Negotiations continued through the

summer and addressed the same proposal introduced in 1989 which resulted in the current 1 year contract extension. Negotiations ended with no agreement.

The September negotiations reconvened with management asking for more ILA flexibility in scheduling the workforce, crew sizes and work rules. The wage side of negotiations is expected to be greatly influenced by this summer's contract agreement on the West Coast with the International Longshoremen's and Warehousemen's Union (ILWU), ratified in July. After agreement is reached on the master contract issues, ports then turn to local issues.

On the Canadian East Coast, the executive committee of the Canadian Labor Congress (CLC) ruled that the ILA was in violation of the CLC because it did not allow for the election of the ILA's Canadian officers by the Canadian membership only. Unrest among Canadian locals began at the last ILA convention in 1987. At that convention, a proposal to form an autonomous Canadian district was rejected. Since that time, the CLC gave Montreal longshoremen an independent charter and they severed their ties with the ILA. The CLC also has recently given longshoremen at the Port of Saint John, New Brunswick, the same option of an independent charter.

Members of the ILWU ratified a 3-year pact with the Pacific Maritime Association (PMA). The 3-year agreement, effective July 1, 1990, assures the uninterrupted movement of cargo through Pacific Coast ports in California, Oregon, and Washington. The new contract includes wage increases of 4 percent a year, preservation of existing medical and hospital care benefits, and job-preservation guarantees. Management gains include modifications to work rules which enhance productivity.

In June 1990 the ILWU and PMA expanded work rolls in Southern California by 350 positions. These new longshore positions were created and set aside for women in response to a 1982 U.S. District Court order to hire more women at the ports of Los Angeles and Long Beach. A reported 5,700 applications were filed for the newly created positions.

The Inlandboatmen's Union, a division of the ILWU, signed a new 3 year longshore agreement in August with the stevedore and shipping affiliate of the All Alaska Longshore Employers Association. The pact covers 13 ports in the State of Alaska.

On the Canadian West Coast dockworkers at British Columbia ports represented by the ILWU agreed with the British Columbia Maritime Employers Association to a 3 year contract. The April agreement covers longshore work at the ports of Vancouver, New Westminster, Victoria, Prince Rupert, Schemainus, Port Alberni and Stewart.

Seafaring

American President Lines (APL) and the International Organization of Masters, Mates and Pilots (MMP) agreed in late 1989 to an unprecedented 8-year agreement. The agreement which became effective January 1, 1990, places officers on specific ships on a permanent basis rather than utilizing the hiring hall system. Ocean carriers are critical of the personnel turnover inherent in the hiring hall system. Carriers like hiring on a permanent basis because employees can be better integrated into a company's operation.

Under the new contract provisions a ship master keeps his permanent status with a specific ship and is now joined with the chief officer and second officer. Third officers will be brought in on a permanent status after 1992. Also included are 5 percent wage increases for the next 3 years, specialized training for advanced technology ships, participation in company run quality seminars, and restrictions on strike activity.

Sea-Land Service, Inc., signed a 3-year contract with the MMP in June 1990. The new agreement, effective July 1, 1990, continues through June 30, 1993. The MMP was nearing an agreement at year's end with Matson Navigation Co. on a 4-year contract. Ship's officers would receive wage increases of 5 percent in the first year and 4 percent in each of the next 3 years. The proposed agreement with Matson would not follow APL's contract. It would not allow appointment of permanent officers to specific ships.

The American Radio Association, a division of the MMP reached agreement with APL on a new 4-year labor agreement. The agreement was effective July 1, 1990 and included provisions for a 17 percent increase in wages over this period. The radio officers union made gains toward guarantees on future officers' roles should advancing technology make their previous jobs obsolete.

Licensed Division members of District 1-MEBA/NMU ratified identical 4-year agreements with

the Maritime Service Committee (MSC) and the Tanker Service Committee (TSC). The MSC represents dry cargo ocean carriers and the TSC, tanker operators. District 1-MEBA/NMU did not agree to any reduction in manning or changes to the hiring hall system. The contracts include 5 percent wage increases for each of the first 3 years and 4 percent for the last year. Work rules were changed to permit mariners to work 6 months before taking vacation instead of the previous 4 months.

Both the MSC and the TSC reached agreement in August 1990 with the Unlicensed Division members of District 1-MEBA/NMU. Final action on the remaining issues is expected in fiscal year 1991.

The Seafarers International Union (SIU) ratified a new 3-year contract in June 1990 which covers members of the Atlantic, Gulf, Lakes and Inland Waters District who work aboard ships of 26 U.S. shipping companies. The agreement calls for wage increases of 5 percent in each year of the pact. Major cutbacks in crewing levels are not part of the agreement.

On the West Coast the SIU reached a tentative 6-year contract with Matson Navigation Co. Included in the agreement are wage increases of 25 percent over the 6-year term and limited crew reductions on Matson ships.

Other 1990 labor related events included the merger of the United Maritime Officer Association (UMOA) with District 1 of the MEBA/NMU, and legislative proposals H.R. 2138 and H.R. 3283.

The UMOA, formed in 1985, represented deck officers who were left without a contract when employers, primarily tanker operators, failed to reach agreement with the MMP in 1984.

U.S. House of Representatives Resolution (H.R.) 2138 was approved in October 1989. The bill contains a Congressional definition of longshore work on foreign-registered vessels that would prohibit foreign seafarers from performing any shipboard work necessary for loading or unloading cargo, including operating equipment. Thirteen European nations and Japan filed a formal demarche in July 1990 stating their deep concern with this proposed legislation.

H.R. 3283 was considered in June 1990 by the House Education and Labor Committee's Subcommittee on Labor-Management Relations. This legislation would extend the National Labor Relations Act and the Fair Labor Standards Act to foreign passenger ships active in U.S. waters and to foreign ships owned by U.S. corporations. The International Council of Cruise Lines representing the interests of 14 passenger cruise companies active in the U.S. market was firmly against this proposed legislation.

Overall, the atmosphere of cooperation between U.S. seafaring labor and U.S. ship operators, was expected to continue and assist in developing and coordinating necessary actions to increase the competitiveness of the U.S. commercial fleet.

Emergency Assistance

The Coast Guard On Scene Coordinator (OSC) of a major shipboard fire in which a tanker with 20,000 barrels of gasoline exploded and burned in Saginaw Bay, MI, requested assistance at the scene from a firefighting instructor from the Toledo Fire Training Center. An instructor assisted the OSC in assessing the firefighting activities in controlling the fire and persistent reflashes.

Labor Data

In fiscal year 1990, average monthly U.S. seafaring employment in all sectors (private, Government contract, and Great Lakes) decreased to 14,168, down 0.7 percent from the FY 1989 average of 14,268. (See Table 16.) The total work force in selected U.S. commercial shipyards increased 3.1 percent from 90,179 in FY 1989 to 92,995 in FY 1990. Average longshore employment decreased slightly from 28,339 to 27,997.

Merchant Marine Awards

Public Law 100-324, the Merchant Marine Decorations and Medals Act, authorizes the Secretary of Transportation to grant medals and decorations for outstanding and meritorious service or participation in national defense action.

During this reporting period, Distinguished Service medals were presented to Boatswain Jack Edwards and Able Seaman Robert H. Wells for their outstanding and heroic performance in saving the life of a fellow crew member onboard the U.S.-flag tanker SS BEAVER STATE in 1987

while enroute to Portland, OR. Messrs. Edwards and Welles were instrumental in rescuing two crew members who were overcome by fumes from a toxic solvent while cleaning cargo tanks.

The Meritorious Service Medal was presented to George W. Raley, Jr., a tugboat crewman aboard the tug MOBILE POWER of Mobile Bay Towing Co., Mobile, AL. He was recognized for saving the life of a crewman in Mobile Bay on Christmas Eve, 1989. The crewman was thrown overboard when the boat on which he was working nearly capsized. Mr. Raley dove into the icy waters with a life ring and rope, and with assistance, pulled the crewman to safety.

The Meritorious Service Medal was also presented to Captain William Auld, Sr., of the fishing vessel SPUR ROYAL for his outstanding performance and seamanship in saving the lives of fellow merchant mariners. In severe weather conditions, Captain Auld expertly maneuvered his vessel through debris, enabling his crew to pick-up survivors of a capsized lift boat in the Gulf of Mexico in 1989. Letters of Commendations were approved by the Maritime Administrator for the SPUR ROYAL's crew for their participation in this incident.

During FY 1990, MARAD issued an additional 15,000 Certificates of Service for recognition of veterans status to merchant mariners who served in the United States merchant marine during World War II. Public Law 100-324 reinstated MARAD's authority, rescinded in 1956 by Public Law 84-759, to accept and process original applications for the issuance of World War II merchant marine awards and decorations.

Bicentennial 1990 Census

MARAD, working jointly with the Bureau of Census, assisted in preparing materials for distribution to seafarers to help assure an accurate count on ships at sea. The Agency was recognized by the Bureau of Census for its role in enumerating crew members and passengers aboard American-flag vessels during the census.

Table 16: MARITIME WORK FORCE AVERAGE MONTHLY EMPLOYMENT

	Average Monthly Employment in Fiscal Year	
	1989	1990
Seafaring Shipboard Jobs:	**14,268**	**14,168**
Shipyards:[1]	**90,179**	**92,995**
Production Workers	62,328	63,632
Management and Clerical	27,851	29,363
Longshore:	28,339	27,997

[1]Commercial yards in the Active Shipbuilding Base, constructing new ships and/or seeking new construction orders.

Chapter 8

National Security

The Maritime Administration (MARAD) maintains the National Defense Reserve Fleet (NDRF) as a reserve source of vessels for use in national emergencies and to assist the U.S. maritime industry in providing for logistical support of the military when needed. The U.S. merchant marine fulfills a traditional role as the Nation's "Fourth Arm of Defense."

After the invasion of Kuwait by Iraqi forces on August 2, 1990, the U.S. Navy requested that MARAD activate Ready Reserve Force (RRF) vessels to provide surge sealift support to Operation DESERT SHIELD. This was the first major activation of the RRF since its establishment in 1976. The RRF, a component of the NDRF, consists of vessels maintained in an advanced stage of readiness for rapid activation and deployment. A discussion of MARAD's role in the Persian Gulf crisis can be found later in this chapter.

National Security Sealift Policy

On October 5, 1989, the President signed a National Security Directive on Sealift Policy which is based on the fundamental principal that "Sealift is essential both to executing this country's forward defense strategy and to maintaining a wartime economy."

This policy represents a direct commitment by the President that action be taken to stem the decline in U.S. commercial sealift capability. The document includes the specific findings that "The United States' national sealift objective is to ensure that sufficient military and civil maritime resources will be available to meet oceanborne defense deployment and concurrently maintain the flow of essential domestic resources in support of our national security strategy."

The statement includes reaffirmation that U.S.-owned commercial carriers continue to be the primary source of surge and resupply sealift required to support the nation in peace, crisis, and war. While it reflects the long-standing U.S. defense planning principle that the United States will also rely on the merchant fleets of our allies where possible, there is clear recognition that the United States must have sufficient U.S.-owned sealift resources to meet requirements for a unilateral response.

Further adequate sealift capability is to be provided by the Federal agencies which, in peacetime, promote the readiness of the U.S. merchant marine and supporting industries to respond to critical national security requirements through efficient application of laws and regulations. New programs to enhance our ability to meet national security sealift requirements are to compete for resources with other national priority security programs.

Progress toward meeting these policy goals will be monitored by the National Security Council Policy Coordinating Committee for Emergency Preparedness and Mobilization. A Sealift Subcommittee, chaired by the Maritime Administrator, has been established to review sealift issues.

Reserve Fleet

The NDRF and other vessels in MARAD's custody serve as an inactive reserve of ships that can be activated to help meet the shipping requirements of the United States during national emergencies. They are available for use in both military and nonmilitary emergencies, including commercial shipping crises. Inactive merchant ships and naval auxiliaries are maintained in the NDRF.

On September 30, 1990, the NDRF comprised 239 active retention merchant vessels plus 90 special program and inactive retention vessels in MARAD custody. Of the total 329 NDRF vessels, 272 of which were located at Ft. Eustis, VA; Beaumont, TX; and Suisun Bay, CA, with 46 outported RRF vessels and 11 other ships at various locations throughout the country. (See Tables 17 and 18.) Of the total 329 ships in the NDRF, 283 are in the fleet preservation program, which involves continuous preservation, dehumidification, and cathodic hull protection.

Ready Reserve Force

The Ready Reserve Force is a select component of the NDRF, established by a joint Department of the Navy and MARAD Memorandum of Agreement (MOA) in 1976. The ships in the RRF are maintained by MARAD in a state of advanced readiness to allow activation in 5, 10, or 20 days to meet surge sealift needs in

the early stages of military contingency operations. As of September 30, 1990, the RRF comprised 96 ships, with planned expansion to 142 ships by 1994.

To keep pace with the growth of the RRF, the Secretary of the Navy approved a MARAD/Navy RRF outporting plan whereby 46 of the 96 RRF vessels are berthed at or near activation sites and expected ports of embarkation.

Operation DESERT SHIELD

On August 10, 1990, the Military Sealift Command (MSC) requested priority activation of all 17 roll-on/roll-off (RO/RO) ships

CHART 1: VESSELS TENDERED FOR DESERT SHIELD AS OF SEPTEMBER 30, 1990

VESSEL	TENDER DATE	TYPE
ADM CALLAGHAN	AUG 26	RO/RO
CAPE DECISION	AUG 29	RO/RO
CAPE DOMINGO	AUG 18	RO/RO
CAPE DOUGLAS	AUG 23	RO/RO
CAPE DUCATO	AUG 24	RO/RO
CAPE EDMONT	AUG 24	RO/RO
CAPE HENRY	AUG 24	RO/RO
CAPE HORN	AUG 19	RO/RO
CAPE HUDSON	AUG 15	RO/RO
CAPE INSCRIPTION	AUG 15	RO/RO
CAPE ISABEL	AUG 21	RO/RO
CAPE LOBOS	AUG 18	RO/RO
COMET	AUG 25	RO/RO
JUPITER	AUG 20	RO/RO
METEOR	AUG 25	RO/RO
CAPE ALEXANDER	AUG 31	BB
CAPE ARCHWAY	SEP 03	BB
CAPE BORDA	AUG 26	BB
CAPE BRETON	AUG 25	BB
CAPE CATOCHE	AUG 30	BB
CAPE CLEAR	AUG 24	BB
CAPE GIBSON	SEP 27	BB
CAPE GIRARDEAU	SEP 26	BB
CAPE JOHNSON	SEP 11	BB
CAPE JUBY	AUG 28	BB
CAPE NOME	SEP 13	BB
DEL VALLE	SEP 14	BB
GULF BANKER [1]	AUG 26	BB
GULF TRADER	SEP 01	BB
MAINE	SEP 12	BB
WASHINGTON	AUG 29	BB
AUSTRAL LIGHTNING	SEP 26	LASH
CAPE FAREWELL	AUG 19	LASH
CAPE FLATTERY	AUG 20	LASH
CAPE MAY	AUG 22	SEABEE
CAPE MENDOCINO	SEP 03	SEABEE
CAPE MOHICAN	AUG 21	SEABEE
CORNHUSKER STATE	SEP 07	CRANE SHIP (T-ACS
EQUALITY STATE	AUG 31	CRANE SHIP (T-ACS)
AMERICAN OSPREY	SEP 11	TANKER/OPDS
CURTISS	AUG 19	T-AVB
WRIGHT	AUG 23	T-AVB

Key: B/B - BreakBulk
RO/RO -Roll-\On/Roll-Off
LASH - Lighter Aboard Ship SEABEE - a.k.a. LASH
OPDS - Offshore Petroleum Delivery System
[1] Returned to MARAD 9/21.

in the RRF to support deployment of U.S. forces to the Persian Gulf in Operation DESERT SHIELD. These vessels are ideally suited for the efficient carriage of military vehicles and outsized equipment.

A total of 44 RRF and 2 aviation logistic support (T-AVB) vessels had been ordered activated by September 30, 1990. Forty-two of these ships had been tendered to the MSC commander, and placed under his operational control by the end of FY 1990, but one of the 42 vessels, the GULF BANKER, was returned to MARAD due to mechanical problems. The other four vessels were awaiting sea trials. (See Chart 1.)

Of the 41 ships tendered to MSC by September 30, 5 were awaiting cargo, 22 had been loaded and were enroute to the Persian Gulf, 4 were off-loading in the Middle East, and 8 had off-loaded and were returning to U.S. ports. The two aviation logistic support ships were on station in the deployment area.

Although some problems and delays were encountered with activating a significant portion of the RRF, the overall mission requirements of this large-scale operation were being met satisfactorily. Of the vessels broken out, 13 were activated at their layberth locations; the remainder required towing to an activation site. Assignment of defense priorities and allocation of shipyard labor and facilities were not necessary in meeting activation requirements.

Due to the number of vessels involved, MARAD participated directly in the management of activations. The responsiveness and capabilities of the shipyards in supporting the activation of RRF ships have been satisfactory.

The activation of RRF vessels is a labor-intensive effort. The first several weeks of ship activations generated employment for an estimated 2,500 shipyard workers. The activation of the initial RRF ships generated a total of 1,432 seafaring jobs.

Vessel crewing was hampered somewhat by the combination of weekend ship activations and the August vacation period for mariners. Because the labor unions' personnel dispatching system was put in place quickly to respond to the extraordinary demand for labor, most ships had the majority of their required crews on board within 4 days. At the same time, some difficulties were experienced in obtaining a full engineering department complement (primarily licensed engineers) and radio officers on some ships which contributed to sea trial delays.

Many of the RRF vessels are over 20 years old and are operated with equipment unfamiliar to many present-day mariners. In many instances, ship personnel had little, if any, experience with their assigned vessel. Five and 10-day activations only allow for highly intensive on-the-job training under extreme pressure prior to sailing.

The marshalling of sealift resources to participate in Operation DESERT SHIELD supported the largest buildup of U.S. armed forces since the Vietnam war. In addition to activating RRF ships as part of the sealift effort, MARAD, consistent with agency responsibilities, assisted the MSC in locating, determining status, and obtaining characteristic information on domestic and foreign commercial ships which were subsequently chartered to provide additional sealift capacity.

Congressional interest in the overall sealift effort resulted in hearings before the House Merchant Marine and Fisheries Subcommittee on the Merchant Marine on September 19 and 26, at which time various Government witnesses attested to the basically satisfactory performance of the massive sealift effort. Witnesses included representatives from the Office of the Secretary of Defense, the U.S. Transportation Command, the Military Sealift Command, and MARAD. The sealift demands for Operation DESERT SHIELD were continuing into FY 1991.

Other RRF Operations

The Chief of Naval Operations ordered several non-DESERT SHIELD activation exercises involving RRF Ships in FY 1990: BRIGHT STAR 90, FUERTES CAMINO 90, OPERATION KNIFE BLADE and OPERATION STEEL BOX. During these exercises, two roll-on/roll-off vessels (RO/RO's) supported exercises in Egypt and Central America, and two auxiliary crane ships were used for cargo movements from Europe to the Far East.

At the end of this reporting period, contracts were scheduled to be awarded to continue the Agency's transition from General Agents to Ship Managers. During FY 1990, MARAD Ship Managers/General Agents issued Invitations for Bids for repairs, maintenance, and regulatory

services for RRF vessels totalling over $56 million.

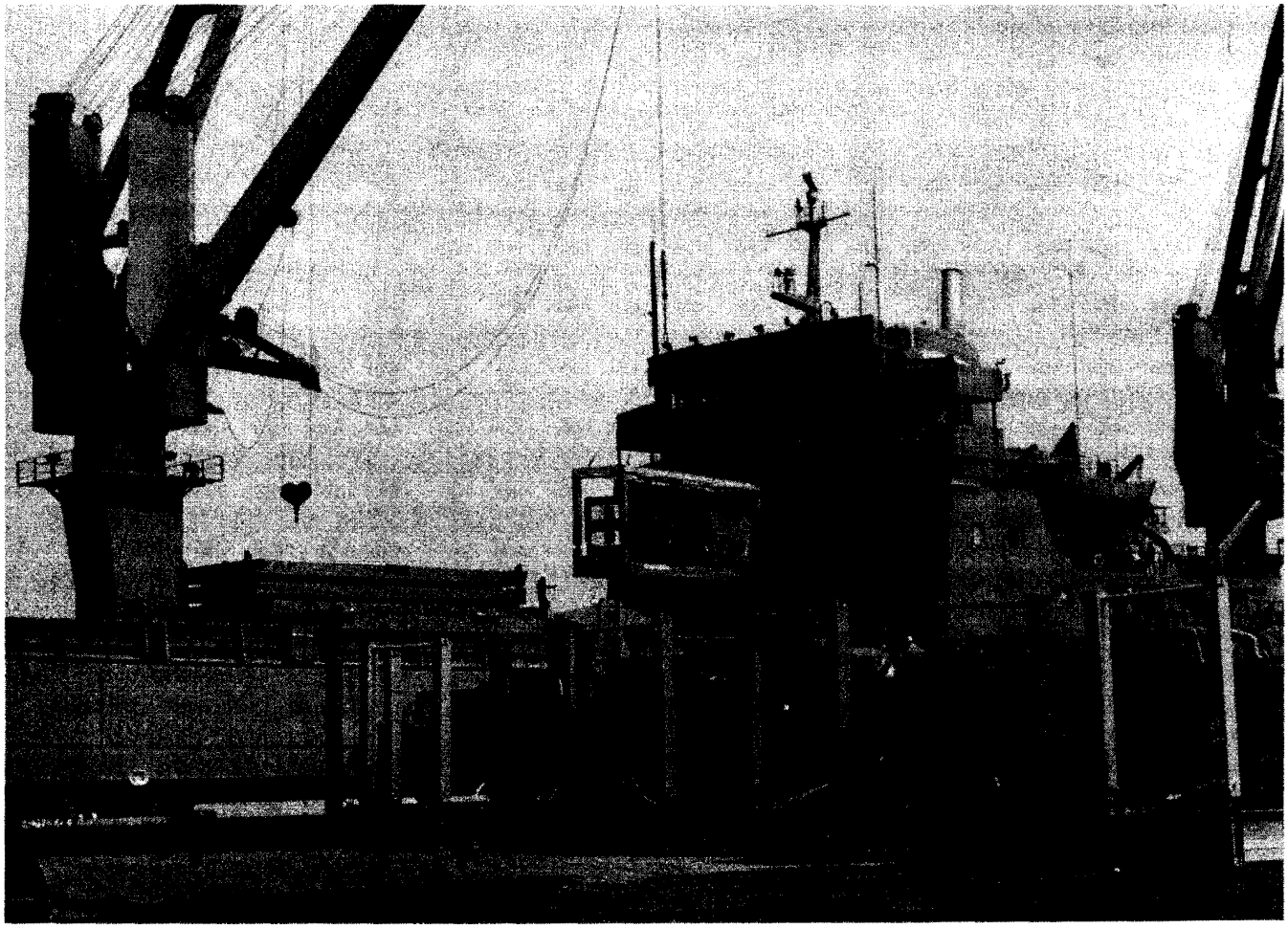
Thirteen RRF ships were subjected to installed equipment validation and inventory of shipboard spare parts during FY 1990. The resulting data derived from these inventories will be loaded into an enhanced Spares Management System which provides shipboard spare parts documentation and spare part deficiency lists to facilitate their procurement.

A system also has been developed to provide physical and financial control of shore-based spares. A Logistics Management Manual to provide instructions to MARAD personnel and ship managers was published and distributed.

Re-Admeasurement of RRF Vessels

Over the next 4 years, MARAD must re-admeasure (insure conformity in the measurement of a vessel's gross and net tonnage) all RRF vessels. These tonnage measurements are used to calculate taxes, fees, and other charges to vessels engaged in domestic and international trade. The requirement is based on findings and recommendations of the 1969 IMO International Tonnage Convention (ITC). The United States is one of 79 Contracting States to the Convention.

To conform with the requirements, MARAD has asked the American Bureau of Shipping (ABS) to perform the re-admeasurement. In the first phase, ABS will review official documentation and records of vessels in the RRF which they had previously classed. In phase II, ABS will perform re-admeasurements in accordance with MARAD specifications, and established vessel priority.



Shown here, military equipment and supplies being loaded for use in Operation DESERT SHIELD.
(Photo: Military Sealift Command)

Ten-Year Drydocking

Under Memorandums of Understanding between MARAD, the U.S. Coast Guard, and the American Bureau of Shipping, the required drydocking surveys for selected RRF vessels can be extended from the previously established 5-year interval to a maximum of 10 years. Vessels are being selected for the extended program based upon projected life expectancy, ship type, and capability of meeting requirements for a mid-term underwater inspection.

Several ships--the NORTHERN LIGHT, CAPE BLANCO, CAPE BRETON, AUSTRAL LIGHTNING, and CAPE HORN--already have been qualified for the extended drydocking interval. Several of the vessels scheduled for fiscal year 1991 drydockings also are being considered for extended 10-year drydocking qualification.

The major differences between 10-year requirements and previous 5-year requirements are the addition of another coat of anti-fouling paint, an underwater marking system for diver identification of frames and structure junctions, and an underwater clearance gauge for rudder and shaft measurements.

The interval between drydock inspections under the new program varies, depends on operational time, as was the case with the previous MOUs. There has not been sufficient time to track all vessel histories and MARAD cannot determine qualification for the 10-year timeframe until all the vessels have been subjected to their interim (5-year) underwater hull surveys.

In conjunction with the 10-year drydockings, a standard MARAD coatings system has been recommended for use on all RRF ships. MARAD ***Coatings Guidelines*** were published in fiscal year 1990 with recommendations for 10-year coating systems, surface preparation, and application. This document has been distributed to all regions and ship managers, and will be updated regularly.

The Auxiliary Crane Ship Program

Conversion of existing RRF ships to auxiliary crane ships (TACS) under a MOU between MARAD and the U.S. Navy was described in Chapter 1. The TACS program schedule is shown in Table 1.

MARAD also carried out other activities in fulfilling its responsibility for maintaining the auxiliary crane ships in a state of readiness for deployment.

Cargo handling training of military personnel continued at Cheatham Annex, VA. The assigned training ship, the FLICKERTAIL STATE (T-ACS 5), was replaced by the CORNHUSKER STATE (T-ACS 6) when the FLICKERTAIL STATE was activated for operation STEEL BOX.

MARAD assisted Navy special forces in planning and executing Operation KNIFE BLADE in the first quarter of FY 1990. The FLICKERTAIL STATE participated in this exercise, which required specialized equipment that was operationally tested aboard the vessel by Navy special forces.

MARAD also was actively involved in the modification and activation of the T-ACS vessels designated for Operation STEEL BOX. Using the services of a General Agent, the GOPHER STATE (T-ACS 4) and the FLICKERTAIL STATE were modified to meet operational requirements. Crews were given special clearances and specialized training for their mission.

In addition, the CORNHUSKER STATE (T-ACS 6) and the EQUALITY STATE (T-ACS 8) were activated in support of Operation DESERT SHIELD. Both vessels were outfitted with heavy duty flatracks and sea sheds for carriage of outsized military equipment.

Aviation Logistics Support Ship Program

Under the Aviation Logistics Support Ship Program, the two T-AVB ships are maintained under MARAD auspices by Ship Manager crews in order to meet certain DOD rapid deployment requirements and to augment the Maritime Preposition Forces. When activated these ships are used to move Marine Corps aviation technicians, spare parts, and equipment from the continental United States and to provide repair capability for fixed wing and rotary wing aircraft in operation areas worldwide.

During the first part of fiscal year 1990, the SS WRIGHT (T-AVB 3), layberthed in Philadelphia, PA, and the CURTISS (T-AVB 4) layberthed

at the Naval Construction Battalion Center, Port Hueneme, CA, served as military training platforms. In August 1990 they were activated for Operation DESERT SHIELD and at year's end were providing full operating services to the U.S. Marine Corps in the Persian Gulf.

Environmental Issues

Implementation of MARPOL Annex V Pollution Prevention regulations, proposed States' requirements for tanker emissions controls, and regulations affecting the coatings used to preserve MARAD ships, stress the importance of environmental issues to the operations and maintenance of the RRF.

In fiscal year 1990 the Agency developed the MARAD Shipboard Solid Waste Management Plan and transmitted it to region offices for implementation aboard RRF vessels. Shipboard plans included data necessary to develop a tailored plan for individual vessels that meet the requirements of MARPOL Annex V. Phase-in of equipment, such as trash compactors and incinerators, has begun and will continue until all RRF ships have adequate waste-handling facilities.

Additionally, preliminary contact was established with the Environmental Protection Agency (EPA) to discuss the possibility of a Memorandum of Agreement that would cover RRF tankers if pending vapor control legislation is enacted at the State level. The possibility of future EPA restrictions affecting RRF ships increases the importance of such an agreement.

Environmental regulations were affecting vessel blasting and coating on the West Coast and were expected to become a concern on the Gulf and East Coasts. Air and water pollution compliance requirements limited the conditions under which ships could be sandblasted and spray-painted. The Agency is looking into alternative equipment and coatings to sustain the quality of maintenance work.

Sealift Enhancement Program

The Navy plans to upgrade an additional 20 RRF vessels with Sealift Enhancement Features as part of the Strategic Sealift Program. These upgrades consist of installing Modular Cargo Delivery Systems at forward and aft stations, which will permit RRF vessels to send a tensioned highline to a Navy ship and transfer cargo to that ship while underway. Nine ships have been selected for upgrade between fiscal years 1991 and 1993. Installation of ancillary equipment and upgrade costs are projected at more than $50 million for these nine ships, with an additional $2 million in module costs for each station. MARAD, with funding provided by NAVSEA, is responsible for module installations and related upgrades and for procurement of ancillary equipment.

National Science Foundation Program

MARAD and the National Science Foundation (NSF) entered into an Interagency Agreement in 1980 to institute a vessel survey program for university-owned scientific research vessels which operate under NSF grants. The surveys were to determine the material condition of the vessels, establish an aggressive maintenance schedule, and extend their operating lives. At the conclusion of the 16th vessel survey in fiscal year 1990, MARAD's participation in this program ended.

Fast Sealift Ship Design

U.S. military services need to rapidly transport unit equipment during a wartime emergency (high speed logistics support). The limited utility of the desired ships is difficult to justify economically unless there is a commercial peacetime service application. At the request of the Navy's Fast Sealift Ship Characteristics Improvement Board (SCIB) Working Group, MARAD initiated a concept design study to determine if a commercially viable Fast Sealift Ship was possible.

During FY 1990, preliminary findings of the study were presented to the Working Group and to several commercial ship operators. The operators indicated preliminary interest in the concepts and provided input regarding changes to the designs to optimize their commercial viability. Based on the input received from the Navy and commercial operators, the concepts were refined and a design report on these concepts was forwarded to all parties concerned, both private and Government. Comments were received and changes were incorporated into three designs representing the most promising commercial options, i.e.: combination carrier, Roll-On/Roll-Off (RO/RO) carrier, and RO/RO container carrier.

Each of these designs was presented to groups of interested

operators. At year's end, operator comments were being reviewed.

A Contract Design effort was scheduled to begin in January 1991. Commercial viability will be maintained through close coordination with the various commercial ship operators. Pending various policy and funding decisions, a contract could be awarded in fiscal year 1992.

Offshore Petroleum Discharge System (OPDS) Program

The Offshore Petroleum Discharge System Conversion Program is a part of a project to supply fuel to Marine Corps and Army beach units from an offshore tanker. The OPDS is designed to permit entrance to an objective area, installation of a temporary spread moor and up to 4 miles of conduit from ship to shore, and delivery of petroleum products through the conduit within 48 hours. After pumping operations begin a Single Anchor Leg Mooring (SALM) would be deployed and the mooring conduit connections transferred from the OPDS ship to the SALM. The spread moor would then be retrieved and pumping operations would begin again. The SALM allows other tankers to come alongside, tie up, and transfer cargo. These operations would be accomplished by civilian tanker personnel, with assistance from U.S. Navy tugs and a Navy diving unit.

The OPDS Program began in 1984 with the conversion of the SS POTOMAC to OPDS-1, followed by conversion of the SS AMERICAN OSPREY to OPDS-2. In 1988 the Department of the Navy requested that MARAD design and convert the SS CHESAPEAKE and the SS PETERSBURG to OPDS, using procurement procedures similar to those used for the Auxiliary Crane Ship (T-ACS) Program. A contract for reconstruction work on the CHESAPEAKE (OPDS-3) was awarded to Houston Ship Repair of Houston, TX, in September 1989. The vessel is scheduled for redelivery to MARAD in the Spring of 1991. Contract bidding for the PETERSBURG could also begin early in FY 1991. The OPDS Program schedule is shown in Chart 2.

Fish Reef Program

Pursuant to Public Law 92-402, as amended by Public Law 98-623, ownership of the vessel ALGON (LKA-54) was approved for transfer to the State of New Jersey for sinking offshore as an artificial fishing reef.

At year's end, three states were on the waiting list to receive vessels as they become available for the fish reef program.

CHART 2: OFFSHORE PETROLEUM DISCHARGE SYSTEM PROGRAM SCHEDULE

NAME	SHIPYARD	REDELIVERY
OPDS-1 SS POTOMAC	Alabama SB & DD	03/03/86
OPDS-2 SS AMERICAN OSPREY	Alabama SB & DD	08/08/88
OPDS-3 SS CHESAPEAKE	Houston Ship Repair	(02/19/91)
OPDS-4 SS PETERSBURG	(To Be Determined)	(To Be Determined)
OPDS-5 (Unknown)	(To Be Determined)	(To Be Determined)
OPDS-6 (Unknown)	(To Be Determined)	(To Be Determined)

[1] Estimated dates.

Ship Sales/Disposal

One Government-owned vessel was offered for sale to citizens and noncitizens during the year for scrapping or for nontransportation purposes and was sold for $396,000 for scrapping in an acceptable foreign area.

From 1958 through 1989 a total of 2,320 vessels were sold for scrap or nontransportation purposes for a total return to the Government of $203.7 million.

War-Risk Insurance

MARAD administers the standby emergency War-Risk Insurance Program in accordance with the statutory authority of Title XII of the Merchant Marine Act, 1936, as amended. The program encourages the continued flow of U.S. foreign commerce during periods when commercial insurance cannot be obtained on reasonable terms and conditions for the purpose of protecting vessel operators and seamen against losses resulting from war or warlike actions.

During the time period when binders were issued between 1952 and September 30, 1984, preceding reinstatement of the statutory authority on October 13, 1989, binder fees totalled $1.45 million, builder's risk insurance totalled $2.58 million, builder's risk insurance income totalled $3.5 million, and investment income totalled $9.8 million.

As of September 30, 1990, 1,637 vessels were covered by binders issued under the Act since Public Law No. 101-115 reinstated statutory authority. The issued binders provide for the availability of hull as well as protection and indemnity war-risk insurance on these vessels. Two hundred forty-nine of the vessels included in this total have second seamen's war-risk insurance coverage available under binder. All binders will be effective for 30 days following any automatic termination of commercial insurance.

The binders issued under Public Law No. 101-115 have generated $91,475 in binder fees; $5,703,752 has been generated in investment income as provided by Section 1208(a) of the Act. Since reinstatement of the statutory authority, the war-risk revolving fund assets have increased to approximately $19 million as of September 30, 1990. Program expenses under Public Law No. 101-115 have totalled $808,972. No binders or policies related to MARAD's standby war-risk cargo insurance and builder's risk insurance programs have been issued under the reinstatement authority.

On February 15, 1990, MARAD published a final rule allowing vessels from the Marshall Islands to become eligible for war risk insurance interim binders.

On August 20, 1990, as a result of the Middle East crisis, MARAD received authority from the President under Section 1205 of Title XII of the Merchant Marine Act, 1936, to issue war risk policies on vessels under contract to the MSC in support of Operation DESERT SHIELD. As of September 30, 1990, war risk hull, protection and indemnity, and second seamen's policies were issued on over 90 such vessels. Also in response to the Middle East crisis, on August 29, 1990, the President authorized MARAD, under Section 1202 of the Act, to write war risk insurance on commercial vessels when insurance could not be found at reasonable terms and conditions in the commercial market. At year's end, MARAD had written war risk policies on one vessel under this authority.

Marine Insurance

MARAD continued to act as the claim agent for Government-owned vessels during fiscal year 1990. As of September 30, 1990, there were 61 protection and indemnity claims outstanding; three were in litigation. Total settlement value of all cases is estimated to be $2,200,000.

MARAD assures that contract requirements are met on all insurance placed in commercial markets by mortgagors of vessels on which the Government guarantees, insures, or holds mortgages; by charterers of Government-owned vessels; and by subsidized operators.

Table 19 shows marine and war-risk insurance approved in FY 1990.

Emergency Operations

In FY 1990, MARAD continued to assist the U.S. Navy by providing operating and communications instructions to the masters of U.S.-flag merchant vessels in the Persian Gulf.

In FY 1990, MARAD also assisted the Department of Defense in Operation JUST CAUSE when U.S. military forces were engaged in a military action in Panama. Many U.S.-flag merchant ships were affected by the action which closed the

terminals on the trans-Panama oil pipeline and the Panama Canal. MARAD coordinated operational information between U.S. authorities and vessel operators.

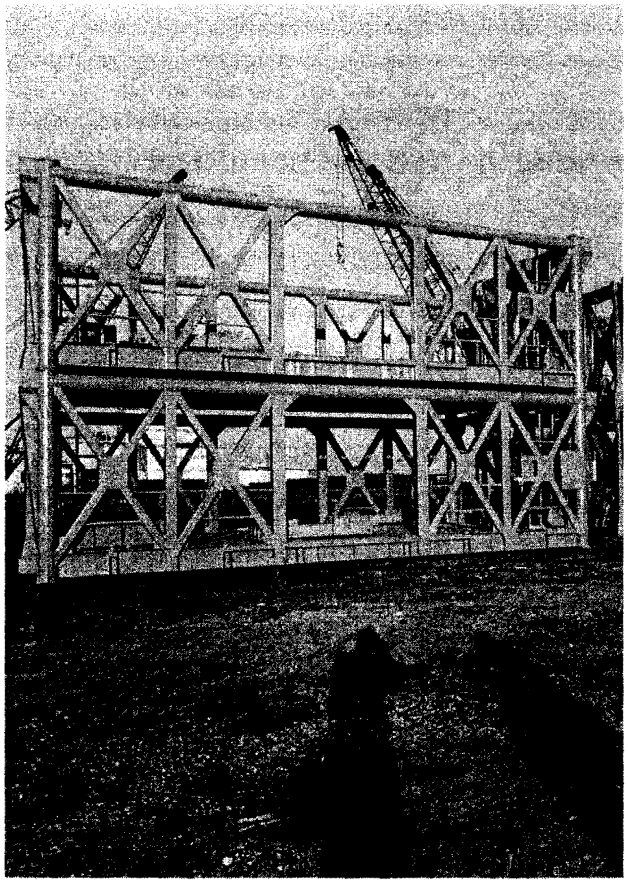
"Special Warning to Mariners" notices were coordinated with the State Department in FY 1990 during the deployment of U.S. Forces to Panama, hostilities in Ethiopia, Sudan, Liberia, Libya, and Morocco, and the United States' interdiction policy in the Persian Gulf and Red Sea. MARAD Advisories and miscellaneous notices were issued during the year involving Master Mariners and Radio Officers readiness training courses, standard U.S. Navy Emergency Call Up Procedures, and Naval Control of Shipping exercises.

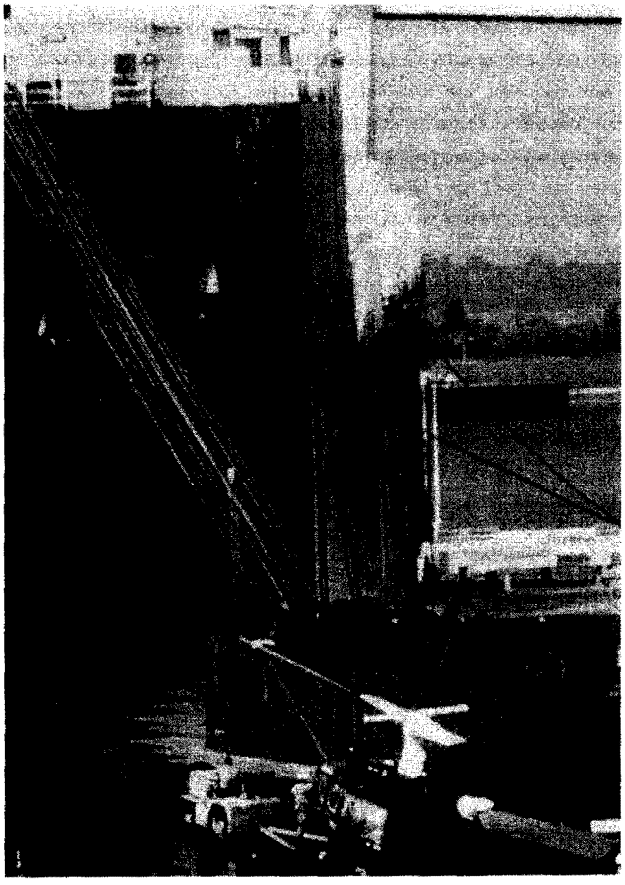
In October and November of 1989, MARAD participated in the Joint Chiefs of Staff-sponsored Exercise PROUD EAGLE 90. Over 150 MARAD employees participated in this three and one-half week, worldwide crisis command post mobilization exercise. MARAD assumed the U.S. National Shipping Authority role in the stimulated activation of RRF and NDRF vessels, the requisition or charter of U.S. and NATO-flag merchant ships, port and intermodal operations, and coordination with maritime labor.

MARAD also participated in the Naval Control of Shipping exercises, EXPANDED SEA 90, TRADE DAGGER 90, and ALPINE CHARGER 89, during the reporting period. The Agency, with the Commander-in-Chief Pacific Fleet, conducted a joint communications test with more than 100 merchant ships in the Pacific and Indian Oceans. This test exercised implementation of the Allied Merchant Ship Communications System. A discussion of MARAD's role in the Persian Gulf crisis can be found under the section on Operation DESERT SHIELD.

Port Emergency Operations

During FY 1990, MARAD carried out the following preparations for the operation of U.S. ports in emergencies which threaten national security.





SeaSheds, modular military cargo systems, transported equipment and outsized cargoes such as this helicopter in Operation DESERT SHIELD. *(Photos: Port of Mobile and MSC)*

Completed Projects	Description
Federal Port Controller Information System	Revised the software of the automated Federal Port Controller Management Information System.
Military Utilization of Marine Containers	Assisted Department of Defense agencies in assessing the utilization of containers to support military logistical requirements including the development of a draft Voluntary Container Agreement and the review of a proposed regulation governing the Army's containerization policy.
Supplemental Commercial/Military Loading Ports	In cooperation with the U.S. Coast Guard, the Office of Emergency Planning, and the Military Traffic Management Command, completed a study and survey of potential commercial loading ports as supplements to existing military facilities.
Port Emergency Personnel Training Conferences	Developed and held four regional training conferences for MARAD Federal Port Controllers and port emergency personnel in the functioning of the National Port Readiness Network.
PROUD EAGLE	Participated in the mobilization exercise PROUD EAGLE.
Roundtable on Maritime Security	Organized and coordinated a national plenary roundtable session on maritime security for industry leaders and Federal law enforcement agencies.

Ongoing Projects	Description
National Port Readiness Coordination	Participated in meetings of the National Port Readiness Steering and Working Groups composed of representatives from MARAD, the Military Traffic Management Command (MTMC), Military Sealift Command (MSC), U.S. Coast Guard (USCG), U.S. Army Corps of Engineers (USACE), Naval Control of Shipping Organization (NCSORG), and Maritime Defense Zones (MARDEZ) in

	accordance with an existing Interagency Memorandum of Understanding on Port Readiness.
Local Port Readiness Committees	Headquarters and regional personnel participated in meetings of local Port Readiness Committees held with local representatives of MTMC, MSC, USCG, NCSORG, and MARDEZ, as part of the National Port Readiness Network.
National Defense Executive Reserve	Continued a program to obtain National Defense Executive Reserve membership for Federal Port Controllers.
Federal Port Controllers	Continued to administer program to assist and train Federal Port controllers. Continued administration of 53 Federal Controllers contracts.
Contingency Response	Continued to participate as a member of the MTMC's National Contingency Response (CORE) team to promote military mobilization and defense preparedness.

Projects Initiated	Description
Mid-East Vessel Activation	Participated in activations, port designations, and operations monitoring in Operation DESERT SHIELD. Coordinated Federal Port Controllers' activities at the designated ports.

Table 17: NATIONAL DEFENSE RESERVE FLEET--SEPTEMBER 30, 1990

Fleet Sites	Active Retention[1]	Special Programs[2]	Inactive Retention[3]	Totals
James River, VA	77	3	28	108
Beaumont, TX	56	36	6	98
Suisun Bay, CA	53	5	8	66
Outports	53	-	4	57
Totals:	239	44	46	329

[1] Vessels maintained under the fleet preservation program for emergency activations, including the RRF and Navy mobilization assets.

[2] Title XI vessels in default and vessels under special custody arrangements.

[3] Vessels pending trade-out under Section 510(i) provisions, Navy vessels held for experimental use, and two vessels donated to states for fish reefs.

Table 18: NATIONAL DEFENSE RESERVE FLEET, 1945--1990

Fiscal Year	Ships	Fiscal Year	Ships
1945	5	1968	1062
1946	1421	1969	1017
1947	1204	1970	1027
1948	1675	1971	860
1949	1934	1972	673
1950	2277	1973	541
1951	1767	1974	487
1952	1853	1975	419
1953	1932	1976	348
1954	2067	1977	333
1955	2068	1978	306
1956	2061	1979	317
1957	1889	1980	303
1958	2074	1981	317
1959	2060	1982	303
1960	2000	1983	304
1961	1923	1984	386
1962	1862	1985	300
1963	1819	1986	299
1964	1739	1987	326
1965	1594	1988	320
1966	1327	1989	312
1967	1152	1990	329

Table 19: MARINE AND WAR-RISK INSURANCE APPROVED IN FY 1990

Kind of Insurance	Total Amount	Percentage	
		American	Foreign
Marine Hull & Machinery	$4,100,261,211	52	48
Marine Protection and Indemnity [1]			
War-Risk Hull and Machinery	3,352,058,227	51	49
War-Risk Protection	3,352,058,227	51	49

[1] Protection and indemnity insurance coverage is obtained principally from assessable mutual associations managed in the British market and is unlimited, thereby making it impossible to arrive at the total amount or percentage figures for American and foreign participation.

Chapter 9

International Activities

In fiscal year 1990, the Maritime Administration (MARAD) continued its efforts to obtain equitable treatment for U.S.-flag carriers' participation in world trade. The Agency negotiated a bilateral maritime agreement with the Soviet Union, conducted discussions with China, Korea and Brazil, and took part in several multilateral conferences.

Maritime Agreement with the Soviet Union

Secretary of Transportation Samuel K. Skinner and Soviet Foreign Minister Eduard Shevarnadze signed a bilateral maritime agreement on June 1, 1990. The agreement, effective on October 1, 1990, was negotiated by the Maritime Administrator with his Soviet counterpart during three rounds of talks in the first half of 1990. The 5-year agreement will facilitate development of bilateral and international trade by providing for easier movement of ships and goods between the two countries.

Provisions of the agreement include improved access for national-flag vessels to each country's ports, annual consultations to discuss cargo carriage expectations and forecast U.S.-flag participation in the bilateral liner trade, provisions for carriage of trade with third countries, and safeguards to prevent predatory rate practices.

In September 1990, U.S. and Soviet maritime delegations met in New Orleans and agreed to the first liner cargo forecast.

Agreement and Discussions With Brazil

In December 1989, the Maritime Administrator and his Brazilian counterpart exchanged letters extending the bilateral equal access agreement between the two countries for 18 months, through June 1991. In August 1990, the Deputy Secretary of Transportation, accompanied by the Maritime Administrator and other officials, visited Brazil to emphasize the U.S. desire for a reduction in the scope of Brazilian government-controlled cargo as part of a continued equal-access agreement.

Consultations with Korea

U.S. and Korean delegations headed by the Maritime Administrator and his Korean counterpart held discussions on shipping issues in Washington, D.C. in June 1990. Agreed Minutes of the consultations summarized positions on outstanding issues, including trucking and rail services, ownership and operation of container terminals and equipment, and discriminatory port charges.

Organization of Economic Cooperation and Development (OECD)

MARAD assisted in efforts to negotiate a multilateral agreement under the OECD to eliminate government subsidies to shipbuilding and other practices inconsistent with normal competitive conditions in the industry. The negotiating effort was headed by the Office of the U.S. Trade Representative. MARAD officials served on U.S. delegations to multilateral talks in Paris and to bilateral discussions with Norway, Finland, the European Community, Korea and Japan.

MARAD also participated in the U.S. delegation to the regularly scheduled meetings of the Maritime Transport Committee (MTC) of the OECD. Among the topics discussed at the annual meeting of the MTC were establishment of a contact group to initiate a dialogue on maritime transport matters with Eastern European countries and developed Asian countries; continued review of positions on rules of procedure for a possible U.N. Liner Code Review Conference; and review of OECD member-country measures of assistance to their merchant fleets.

Uruguay Round Services Negotiations

During 1990, MARAD continued to be a part of the U.S. delegation to the Group of Negotiations on Services in Geneva. The negotiations, part of the so-called Uruguay Round of multilateral trade negotiations, were scheduled to be concluded by December 31, 1990. MARAD provided expertise on the maritime transport industry and problems that could be encountered in including maritime transport under the GATT. As part of a Departmental effort, MARAD also ensured that affected maritime

industries were informed regularly of the status of the services negotiations.

Other International Activities

Also in FY 1990, MARAD participated in meetings and training sessions of the North Atlantic Treaty Organization's (NATO's) Defense Shipping Authority and its Planning Group, Military Sealift Working Group, Training and Exercise Study Sub-Group, and the Interallied Insurance Organization. The Agency also participated in the 42nd Planning Board for Ocean Shipping Plenary, chaired by the Maritime Administrator, and certain activities of the Senior Civil Emergency Planning Committee.

MARAD continued technical discussions with the Canadian Coast Guard and Transportation Development Center in Ottawa and Montreal in August 1990, seeking further areas for cooperation in maritime transportation. Particular emphasis was placed on the use of export systems and tanker safety.

MARAD provided maritime security technical exchange and assistance by organizing an international conference on maritime security in cooperation with the International Association of Airport and Seaport Police.

During the year, representatives from the Arab Security Studies and Training Center, Riyadh, Saudi Arabia, visited the Merchant Marine Fire Training Center, Toledo, OH, to review shipboard fire training programs and the physical plant layout. This was a follow-up to a 3-week training course in Saudi Arabia taught by MARAD instructors in FY 1989.

The Agency also assisted the Department of State in its anti-terrorism training program. MARAD participated in a U.S. delegation that visited major Soviets ports from April 26-May 5, 1990, and discussed Port Safety and Security matters.

In May 1990, MARAD participated in the 27th International Navigation Congress in Osaka, Japan, sponsored by the Permanent International Association of Navigation Congresses (PIANC). The Agency contributed a technical paper which addressed critical issues and problems related to maritime transport.

MARAD also continued liaison with national and international organizations providing technical assistance and training in the Caribbean region. Potential technical assistance and training projects and coordination efforts with the Department Secretariat in support of the President's new initiatives for Latin America, also were begun during the fiscal year.

The International Association of Ports and Harbors Foundation, headquartered in Tokyo, Japan, published another MARAD technical paper, which discussed U.S. port development.

In cooperation with the International Maritime Organization's (IMO) World Maritime University, the Agency provided on-the-job training at its offices and selected U.S. ports for mid-level management officials from the Peoples Republic of China, Columbia, and Gambia.

Chapter 10

Administration

The administrative actions taken in support of the mission and programs of the Maritime Administration (MARAD) in fiscal year 1990 are summarized below.

National Transportation Policy

During fiscal year 1990, the U.S. Department of Transportation completed a 10-month program of outreach, assessment, and evaluation of National Transportation Policy (NTP) which culminated with publication of ***Moving America–New Directions, New Opportunities: A Statement of National Transportation Policy.*** The NTP statement concludes that "The ability of the U.S. civilian transportation system to support military sealift is a significant concern for national defense transportation." It further states that, "The decline of the U.S. merchant marine has impaired the Nation's ability to meet military sealift requirements."

In response to the assessment of maritime capability, the statement includes the declaration that it is Federal transportation policy to "carry out the national sealift...policy, through close cooperation between the Departments of Defense and Transportation..." The NTP also states that it is Federal policy to "develop forecasts of future defense transportation requirements and establish priorities among them, through coordinated efforts of all affected Federal agencies." Implementation of the NTP began immediately and was ongoing at the end of the reporting period.

Action plans were developed and reviewed and specific actions were assigned priorities for implementation. Actions which required longer-term development and intermodal coordination were categorized into eleven Emphasis Areas. Working groups were established for each of these areas with representation from all relevant modal administrations within the Department. The Deputy Maritime Administrator for Inland Waterways and Great Lakes chairs the Defense Transportation Working Group and Co-chairs the Improved Intermodal Access and Coordination Working Group. These groups represent new milestones in cross-modal coordination to resolve transportation problems.

Maritime Subsidy Board

The Maritime Subsidy Board (MSB), by delegation from the Secretary of Transportation, principally awards, amends, and terminates contracts subsidizing the construction and operation of U.S.-flag vessels in the foreign commerce of the United States. To perform its functions, the MSB holds public hearings, conducts fact-finding investigations, and compiles and analyzes trade statistics and cost data. MSB decisions, opinions, orders, rulings, and reports are final unless the Secretary of Transportation undertakes review of these actions.

The MSB is composed of the Maritime Administrator, who acts as Chairman of the Board, the Deputy Administrator, and the Agency's Chief Counsel. The Secretary of MARAD and the MSB acts as an alternate member in the absence of any one of the three permanent Board members.

The MSB met 23 times in FY 1990. It considered and acted on 25 items and issued 9 formal opinions, rulings, and orders. MARAD also published 48 notices in the Federal Register relating to required statutory hearings and to the development and adoption of rules and regulations in the implementation of the Merchant Marine Act, 1936, as amended. The Secretary of MARAD, as Freedom of Information Officer, received and processed approximately 263 Freedom of Information Act requests.

During FY 1990, the MSB took a number of administrative actions to help strengthen the U.S. merchant marine. In the area of bulk fleet operations, the MSB approved the requests of four bulk vessel operators receiving Operating-Differential Subsidy (ODS) to permit additional vessels to become subsidized under the existing subsidy contracts within the limits of subsidy funding of those contracts. The companies are Margate Shipping, Inc., Chestnut Shipping, Inc., Vulcan Shipping, Inc., and Brookville Shipping, Inc. These arrangements (sometimes called "ODS sharing") do not increase the amount of ODS payable under the ODS Agreements, but give the operators greatly increased flexibility in optimizing fleet utilization. These actions result in more efficient use of ODS assistance to the U.S.-flag fleet. The additional vessels' prospects for economical operations were significantly improved, enabling them to better compete for cargoes in their expected markets, improving the presence of the U.S.-flag fleet in trades where the U.S.-flag presence is minimal.

U.S.-flag liner vessel operations were aided by the MSB's approval of the time charter of the C6-M-F146a-Type cargo vessels CHESAPEAKE BAY and DELAWARE BAY, owned by First American Bulk Corp., to Lykes Bros. Steamship Co., Inc. for operation in subsidized services. The vessels will operate under subsidy as replacements for retired Lykes vessels. The transaction resulted in two modern, efficient vessels replacing two old vessels in the Lykes fleet at a lower outlay of subsidy funds.

In addition, the MSB approved the revision and consolidation of three existing subsidy contracts with Waterman Steamship Corp. (Waterman), providing a uniform expiration date of December 31, 1996. The revision provides for continued subsidized service on trade routes from the U.S.-Atlantic to the Far East and eliminates certain European subsidized services. The overall result of the consolidation will be continued U.S.-flag Far East service by Waterman with a reduction in total subsidy outlay from what would have been paid under the existing contracts.

The MSB also approved implementation of new regulations that supplement procedural rules concerning statutorily mandated hearings under Sections 605(c) and 805(a) of the Merchant Marine Act, 1936, as amended. The new procedures enable the Agency to render more timely decisions by providing alternatives, in appropriate circumstances, to the conduct of full evidentiary hearings. Matters of significant and complex factual issues requiring the submission of extensive evidence could be referred to an administrative law judge for hearing as in the past, whereas matters with no material factual issues in dispute could be subjected to a show cause type of proceeding, or an expedited hearing, before a member of the Board.

Legal Services, Legislation, and Litigation

MARAD's Chief Counsel provides legal assistance on a wide range of issues relating to DOT and MARAD programs. The Office provides legal support services for the contracting, procurement, and personnel activities conducted by MARAD Headquarters, regional offices, and the U.S. Merchant Marine Academy at Kings Point, NY. It routinely provides significant legal support in administration of the Merchant Marine Acts of 1920 and 1936, the Shipping Act of 1916, and the cargo preference laws. During fiscal year 1990, significant legal resources were also devoted to MARAD's involvement in Operation DESERT SHIELD, and to continued implementation and administration of the Department's anti-drug abuse program at the Merchant Marine Academy.

Litigation support is provided to the Department of Justice in admiralty and maritime cases arising from the operation and administration of MARAD's programs. A significant amount of time was devoted to litigation involving disposition of vessels obtained by MARAD through defaults under Title XI of the Merchant Marine Act of 1936. A settlement of one such case was achieved, but at the end of the fiscal year it was being challenged by a private party.

MARAD also processed for settlement a limited number of claims brought under the Suits in Admiralty and Public Vessels Acts, which will total approximately $125,000 in FY 1990.

Legislative efforts included reviewing and commenting on a multitude of legislative material and, in particular, focused on developing ODS reform legislation, preserving the integrity of the Jones Act, resisting efforts to circumvent the cargo preference laws, and ensuring the preservation of the National Defense Reserve Fleet.

Regulatory initiatives included publication of proposed amendments to interim final rules published the previous fiscal year implementing significant statutory changes in the Ship Mortgage Act of 1920; final regulations implementing statutory changes to the Capital Construction Fund; final regulations regarding surveys and administration of ship maintenance and repair subsidies; and, final regulations regarding hearings and proceedings required to be conducted under certain sections of the Merchant Marine Act, 1936, as amended.

Management Initiatives

During FY 1990, a new Division of Logistics Support in the Office of Ship Operations was established to permit more effective management of logistics support functions for MARAD's Ready Reserve Force (RRF) ships. The new division is responsible for coordinating the development, implementation, and ongoing operation of logistics support systems for RRF ships.

Audits

In FY 1990, the Department of Transportation's Office of the Inspector General submitted the following final principal internal audit reports to MARAD:

- *Audit of Disposition of Title XI Vessels.*
- *Audit of Outport Vessels in Ready Reserve Force (RRF)– (A Survey of MARAD's RRF Outporting Program).*
- *Audit of Controls Over Contracted Advisory and Assistance Services.*

The General Accounting Office issued no final audit reports during FY 1990 on MARAD's activities.

Information Management

Between fiscal years 1986 and 1989, all MARAD regional offices, as well as most field offices, received microcomputers which are compatible with those at MARAD headquarters.

The MARAD NOVELL network, through the Extended Local Area Network (ELAN), is a comprehensive, totally flexible communications link between headquarters program offices and the regions. Regional and field offices now can share data and files with headquarters offices. MARAD eventually plans to have all headquarters program and regional offices networked via the ELAN.

The Agency has installed 346 "286" microcomputers and 30 "386" microcomputers, along with 15 of the 17 file servers now connected to the ELAN thick ethernet cable backbone within DOT Headquarters.

During the year, the Department of Transportation awarded a major contract to AT&T for all office automation which requires implementation and transition of standards throughout the Department. MARAD redirected funds for the evaluation of and transition to the department-wide Office Automation Technology Services (OATS) program.

At the end of the reporting period, the Agency was in the process of making the transition from the standard packages (Word Perfect 5.0, LOTUS 1-2-3, and dBASE III Plus) to the OATS software (MS-WORD with Windows, MS-EXCEL with Windows, and SUPERBASE 4 with Windows).

During the reporting period, MARAD also was implementing a new Maritime Management Information System in Agency offices. The system will provide all offices accessibility to information necessary for daily operations and decision-making.

Additionally, MARAD standardized the implementation of ORACLE DBMS with CASE Tools and planned the transition to ORACLE for many of its mainframe and microcomputer systems and applications in FY 1991.

During the reporting period, the Agency completed development of two major on-line retrieval systems. The first system is the Maritime Statistical Information System (MSIS), the largest on-line retrieval system within MARAD. MSIS is an integrated database involving vessel voyages, port facilities, cargo and commodity tracking, and other maritime-related items.

The second system is the Ready Reserve Force Spares Management System (RRF-SMS). When fully installed, the RRF-SMS will enable MARAD to:

- Maintain the equipment configuration record of every RRF vessel.
- Maintain the allowance quantities of spare/repair parts required to support each vessel's configuration.
- Maintain a perpetual inventory of spare/repair parts stowed on-board RRF vessels.
- Produce, when required, printed allowance documents for RRF vessels, reflecting on-board quantities.
- Facilitate identification and location of equipment and spare parts throughout the fleet.

Over the past few years and during the next 5 years, MARAD expects to migrate to an MS-DOS/UNIX micro computer environment, the de facto standard in the computer industry.

During the reporting period, two MIPS 3240 computers along with eight X-Stations were purchased. The MIPS runs under the UNIX operating system and will be connected through the Extended ELAN via NOVELL file servers. Each MIPS will be loaded with CASE Tools and ORACLE software. MARAD plans to standardize the

minicomputer applications environment and maintain continuity within the Agency.

During the year, MARAD replaced its CALLAN minicomputer correcting a material weakness under OMB Circular A-123. The Agency also was in the process of replacing the MICROVAX minicomputer for several applications. The MICROVAX will continue to provide support, but will be converted to a file server with VMS and linked with the remaining file servers and microcomputers, to share and more efficiently utilize resources. The change also will provide back-up capability via the other file servers.

The first stage of conversion to FTS 2000 was completed in FY 1990. Transition to voice communications under FTS 2000 was accomplished and conversion to data transmission was expected during FY 1991.

Personnel

MARAD's employment totaled 1,053 at the end of FY 1990. The percentage of MARAD's female and minority employees and their representation in supervisory positions remained relatively stable during the period, as did the percentage of handicapped employees.

Two upward mobility positions were established during FY 1990 and five Equal Employment Opportunity Awards were approved.

Twenty-three employees received high honors in FY 1990. Four Silver Medals, 14 Bronze Medals, and 5 Secretary's Awards for Excellence were approved. Performance awards went to 98 Agency employees during the year--22 Quality Step Increases and 76 Special Achievement Awards.

Safety Program

During FY 1990, MARAD established a Respiratory Protection Program at its field installations to safeguard employees against possible work-related airborne hazards. The program provides each employee, as needed, with a respirator approved by the National Institute for Occupational Safety and Health, and high efficiency cartridges for protection against a wide range of dust particles. Additional types of respirators and filters/cartridges are available to employees, as needed. Employees at the installations received respirator training, respirator fit testing, and medical clearance for wearing of a respirator.

During the year, MARAD also established a Hearing Conservation Program to minimize occupational noise exposure through initiation of engineering controls, if practical, and by issuing personal protective equipment (ear protection) for use by employees in high-noise work areas. The Agency conducts noise exposure level surveys of work areas and work operations to identify occupational exposure levels. The Agency also provides appropriate training and annual audiometric examinations.

MARAD also initiated an educational and training program at its Beaumont, James River, and Suisun Bay National Defense Reserve Fleets which enabled employees to volunteer and acquire, intensive medical skills to provide immediate medical care to fellow employees who suffer on-the-job injuries. Ten James River Reserve Fleet employees completed a program at the Mary Immaculate Hospital, Newport News, VA, and were certified by the Commonwealth of Virginia as "Emergency Medical Services First Responders." Eleven Beaumont Reserve Fleet employees completed their program at Lamar University and have been certified as "Emergency Medical Technicians" by the State of Texas. Six Suisun Bay Reserve Fleet employees were receiving similar training.

During the year, the Agency continued its Action Plan for the prevention of asbestos exposures and uses in MARAD programs. MARAD policy is to prohibit or stringently limit personnel exposure to airborne asbestos fibers. The Action Plan is geared to the elimination of asbestos materials from MARAD programs. It encompasses the repair or replacement of such materials already installed, modified work procedures, and employee training.

MARAD's Asbestos Medical Surveillance Program provides pre-placement, periodic, and pre-separation medical examinations to designated MARAD employees exposed or potentially exposed to hazardous substances or conditions. Employees assigned to MARAD's headquarters, the reserve fleets, the regional offices, and the U.S. Merchant Marine Academy were provided occupational medical examinations during FY 1990.

The Agency also continued its Safety Shoe Program by providing toe guard and non-slip sole safety shoes, as needed, to reserve fleet employees assigned to hazardous areas and operations.

Environmental Issues

Nuclear waste from the NS SAVANNAH was deposited in the Maxey Flat, KY, nuclear waste disposal site from the 1960s to the 1970s. This site was being cleaned up, with MARAD responsible under the Environmental Protection Agency (EPA) Superfund laws for a prorated share of the clean up costs, estimated to be less than a half million dollars. These costs had not yet been assessed.

The SAVANNAH is under bareboat charter to the Patriots Point Development Authority in South Carolina. MARAD has a nuclear license for possession of the dormant reactor aboard the ship. All fuel and radioactive liquids have been removed from the vessel but the reactor vessel and control rods remain radioactive. Annual visits to the ship are required to hold the audit committee meetings associated with the license requirements.

Data from the SAVANNAH layup and operations is stored at the Maritime Technical Information Facility (MTIF), on the grounds of the Merchant Marine Academy Kings Point, NY. The data has been requested by the Japan Atomic Energy Research Institute (JAERI) under an agreement with the U.S. Department of Energy to exchange decommissioning information on select nuclear facilities; the agreement was being modified to include data for the SAVANNAH in exchange for data from the Japanese Nuclear Ship MUTSU.

The Department of Transportation has established an environmental audit team to review its facilities for compliance with environmental issues. The Merchant Marine Academy was one of the first DOT facilities audited, was found to have acceptable conditions.

Installations and Logistics

Real Property

On September 30, 1990, MARAD's real property included NDRF sites at Suisun Bay, CA, Beaumont, TX, and James River, VA, and the U.S. Merchant Marine Academy at Kings Point, NY. Facilities for training maritime firefighters were operated at Freehold, NJ, and Treasure Island, CA, under MARAD agreements with the U.S. Navy, and in New Orleans, LA, under agreement with Delgado College. MARAD operates the Toledo, OH, marine fire training facility.

Regional headquarters offices were maintained in New York, NY; Norfolk, VA; New Orleans, LA; Des Plaines, IL; and San Francisco, CA. Maritime Development Offices were maintained in Long Beach, CA; Seattle, WA; Houston, TX; Portland, OR, and at the five regional headquarters. In addition to those located at Regional Headquarters offices, Ship Management offices were maintained in New York, NY, Cleveland, OH, and Port Arthur, TX.

During FY 1990, Marine Safety International of New York, NY, continued to manage and operate the Agency's Computer-Aided Operations Research Facility at Kings Point, NY, under a cooperative agreement.

In compliance with the Indoor Radon Abatement Act of 1988, MARAD, through a reimbursable agreement with the U.S. Coast Guard--DOT's lead agency for radon testing--provided detectors and quality assurance services to MARAD-owned field facilities to initiate a study of radon contamination at MARAD Field Facilities.

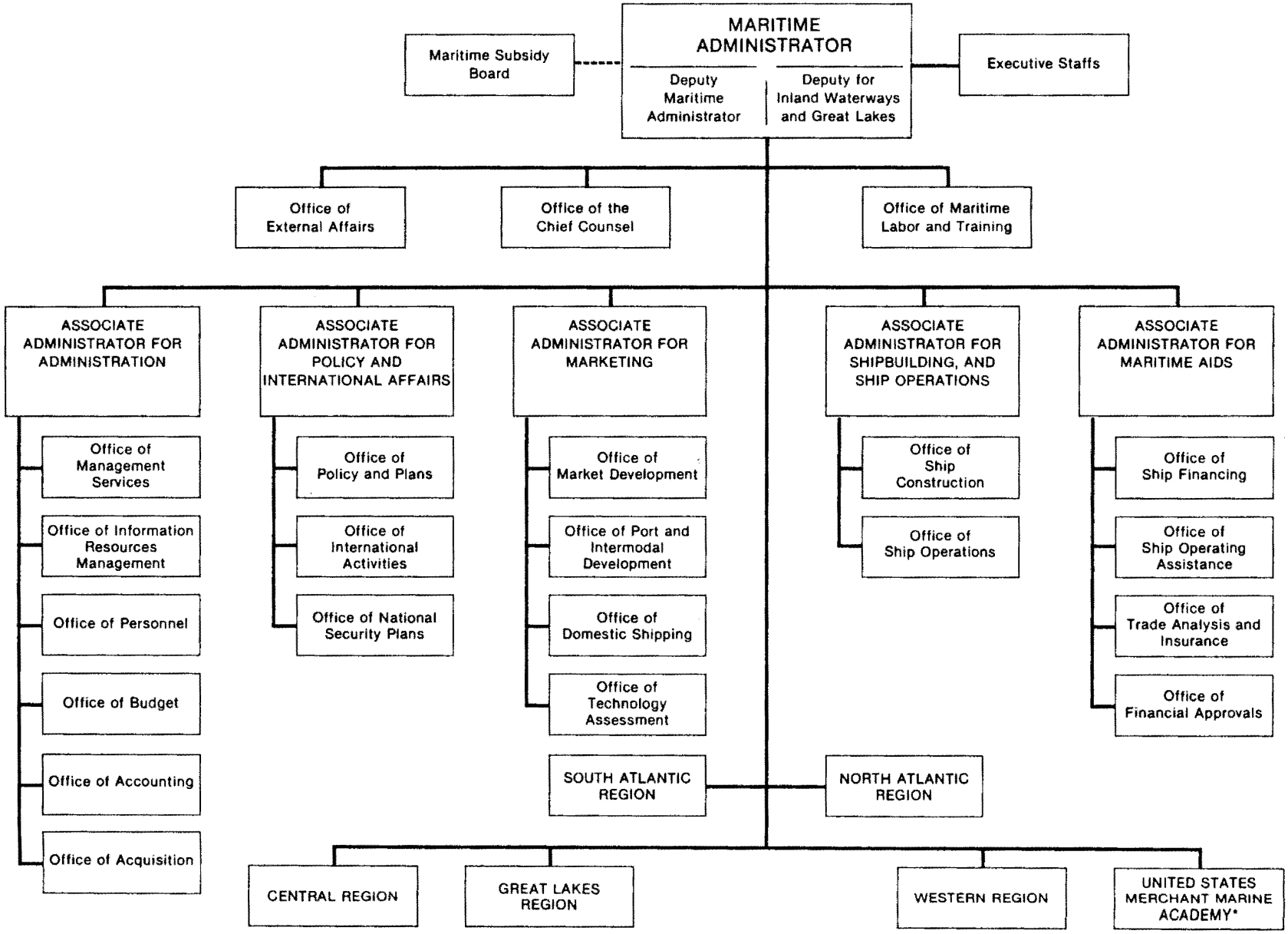
Accounting

MARAD's accounts are maintained on an accrual basis in conformity with generally accepted principles and standards, and related requirements prescribed by the Comptroller General.

The net cost of MARAD operations totaled $664.3 million. This included $253 million in operating and ocean freight differential subsidies. Administrative expenses of $79.8 million and $89.1 million for maintenance and preservation of reserve fleet vessels, and $8.3 million for financial assistance to State maritime academies. MARAD received $234.1 million in other operating expenses net of income.

Financial statements of MARAD appear as Exhibits 1 and 2.

MARITIME ADMINISTRATION



* Kings Point, N.Y.

U.S. DEPARTMENT OF TRANSPORTATION--Maritime Administration

LIABILITIES	September 30 1990	September 30 1989
Seleted Current Liabilities (Note 2)		
Accounts Payable (Including Funded Accrued Liabilities):		
Government Agencies	$ 7,325,921	$ 3,014,872
The Public	44,815,135	49,284,825
	52,141,056	52,299,697
Total Selected Current Liabilities	$52,141,056	$ 52,299,697
Deposit Funded Liabilities	563,033	562,515
Unfunded Liabilities:		
Accrued Annual Leave	8,224,837	6,719,450
Debt issued under borrowing Authority:		
Borrowing from Treasury	0	0
Other Liabilities:		
Vessel Trade-in Allowance and Other Accrued Liabilities	8,635,191	29,114,575
Total Liabilities	69,564,117	88,696,237
Government Equity		
Unexpended Budget Authority:		
Unobligated	607,879,902	485,442,539
Undelivered Orders	2,483,750,689	1,928,390,524
	3,091,630,591	2,413,833,063
Unfinanced Budget Authority (-)		
Unfilled Customer Orders	(52,025,426)	(68,523,520)
Contract Authority	(2,303,310,000)	(1,762,155,000)
	(2,355,335,426)	(1,830,678,520)
Invested Capital	868,916,116	1,300,359,565
Total Government Equity	1,605,211,281	1,883,514,108
Total Liabilities and Government Equity	**$1,674,775,398**	**$ 1,972,210,345**

The Notes to Financial Statements are an integral part of this statement.

U.S. DEPARTMENT OF TRANSPORTATION--Maritime Administration

Exhibit 2. Statement of Operations

	Years Ended September 30	
	1990	1989
OPERATIONS OF THE MARITIME ADMINISTRATION		
Net Costs of Operating Activities		
Reserve Fleet Programs:		
Maintenance and Preservation	$ 89,067,378	$48,190,748
Direct Subsidies and National Defense Costs:		
Operating-Differential	230,971,797	220,409,000
Construction-Differential	0	0
Ocean Freight Differential	22,014,000	43,776,389
	252,985,797	264,185,389
Administrative	79,830,888	55,535,249
Research and Development	1,357,885	2,281,887
Financial Assistance to State Marine Schools	8,269,000	26,062,000
	89,457,773	83,879,136
Other Operating Income Net of Expenses	28,022,560	3,261,508
Net Cost of Maritime Administration	$ 459,533,508	$399,516,781
OPERATIONS OF REVOLVING FUNDS (-Income):		
Vessel Operations Revolving Fund	(51,357,170)	($53,465,922)
War-Risk Revolving Fund	(1,333,793)	(1,012,017)
Federal Ship Financing Fund	257,465,642	(313,822,189)
	204,774,679	(368,300,128)
Net Cost of Combined Operations	**$ 664,308,187**	**$ 31,216,653**

The notes to the financial statements are an integral part of this statement.

U.S. DEPARTMENT OF TRANSPORTATION--MARITIME ADMINISTRATION

Notes to Financial Statements--September 30, 1990, and September 30, 1989

1. The preceding financial statements include the assets, liabilities, income, and expenses of the Maritime Administration (MARAD); the Vessel Operations Revolving Fund, the War-Risk Insurance Revolving Fund, and the Federal Ship Financing Fund.

2. MARAD was contingently liable under agreements guaranteeing obligations or insuring mortgages and construction loans payable to holders or lenders totaling $3,013,587,709 on September 30, 1990, and $3,602,312,119 on September 30, 1989. MARAD had no commitments to guarantee additional obligations on September 30, 1990. There were no commitments to guarantee additional obligations in FY 1990.

3. MARAD held no cash or securities on September 30, 1990 in escrow in connection with the guarantee of obligations or the insurance of loans and mortgages which were financed by the sale of bonds in the securities market. There were no conditional liabilities for pre-launching War-Risk Builder's Insurance on September 30, 1990.

4. On September 30, 1990, the U.S. Government held $90,000 in securities which had been accepted from vessel owners, charterers, subsidized operators, and other contractors as collateral for their performance under contracts.

5. The Federal Ship Financing Fund, a revolving fund, is currently self-supporting. As of September 30, 1990, the Federal Ship Financing Fund had $537.7 million combined cash and investments. During FY 1990, the fund incurred and paid out $138.7 million in mortgage loan defaults, no borrowing from U. S. Treasury was necessary to cover these defaults.

During FY 1990, the fund received $750,000 in supplemental appropriations.

6. MARAD wrote off loans receivable of $259.9 million for the Title XI Program during FY 1990.

7. MARAD adjusted its liabilities to $2,303,310,000 as of September 30, 1990, recognizing the estimated total of contractual liability outstanding on the current Operating Differential Subsidy contracts.

Appendix I: MARITIME SUBSIDY OUTLAYS--1936-1990

Fiscal Year	CDS	Reconstruction CDS	Total CDS	ODS	Total ODS & CDS
1936-1955	$ 248,320,942 *	$ 3,286,888	$ 251,607,830	$ 341,109,987	$ 592,717,817
1956-1960	129,806,005	34,881,409	164,687,414	644,115,146	808,802,560
1961	100,145,654	1,215,432	101,361,086	150,142,575	251,503,661
1962	134,552,647	4,160,591	138,713,238	181,918,756	320,631,994
1963	89,235,895	4,181,314	93,417,209	220,676,685	314,093,894
1964	76,608,323	1,665,087	78,273,410	203,036,844	281,310,254
1965	86,096,872	38,138	86,135,010	213,334,409	299,469,419
1966	69,446,510	2,571,566	72,018,076	186,628,357	258,646,433
1967	80,155,452	932,114	81,087,566	175,631,860	256,719,426
1968	95,989,586	96,707	96,086,293	200,129,670	296,215,963
1969	93,952,849	57,329	94,010,178	194,702,569	288,712,747
1970	73,528,904	21,723,343	95,252,247	205,731,711	300,983,958
1971	107,637,353	27,450,968	135,088,321	268,021,097	403,109,418
1972	111,950,403	29,748,076	141,698,479	235,666,830	377,365,310
1973	168,183,937	17,384,604	185,568,541	226,710,926	412,279,467
1974	185,060,501	13,844,951	198,905,452	257,919,080	456,824,532
1975	237,895,092	1,900,571	239,795,663	243,152,340	482,948,003
1976**	233,826,424	9,886,024	243,712,448	386,433,994	630,146,442
1977	203,479,571	15,052,072	218,531,643	343,875,521	562,407,164
1978	148,690,842	7,318,705	156,009,547	303,193,575	459,203,122
1979	198,518,437	2,258,492	200,776,929	300,521,683	501,298,612
1980	262,727,122	2,352,744	265,079,866	341,368,236	606,448,102
1981	196,446,211	11,666,978	208,113,192	334,853,670	542,966,862
1982	140,774,519	43,710,698	184,485,217	400,689,713	585,174,930
1983	76,991,138	7,519,881	84,511,019	368,194,331	452,705,350
1984	13,694,523	-0-	13,694,523	384,259,674	397,954,197
1985	4,692,013	-0-	4,692,013	351,730,642	356,422,655
1986	-416,673	-0-	-416,673	287,760,640	287,343,867
1987	420,700	-0-	420,700	227,426,103	227,846,803
1988	1,236,379	-0-	1,236,679	230,188,400	231,425,079
1989	-0-	-0-	-0-	212,294,812	212,294,812
1990	-0-	-0-	-0-	230,971,797	230,971,797
Total	**$3,569,648,434**	**$264,904,682**	**$3,834,553,116**	**$8,852,391,474**	**$12,686,944,650**

* Includes $131.5 million CDS adjustments covering the World War II period, $105.8 million equivalent to CDS allowances which were made in connection with the Mariner Ship Construction Program, and $10.8 million for CDS in fiscal year 1954 to 1955.

** Includes totals for FY 1976 and the Transition Quarter ending September 30, 1976.

Appendix II: Combined Financial Statements of Companies With Operating-Differential Subsidy Contracts
Statement A--Balance Sheet for Fiscal Years Ending in 1989 and 1988

	1989	1988
		(stated in thousands)
ASSETS		
Current Assets:		
Cash	$55,046	$90,641
Marketable Securities	16,399	43,159
Notes Receivable	17	17
Accounts Receivable	322,662	319,755
Estimated Allowance for Doubtful Receivables	(4,106)	(4,440)
Other Current Assets	85,879	82,140
Total Current Assets	$475,897	$531,272
Non-Current Assets:		
Restricted Funds	$17,442	$16,299
Investments	6,421	9,421
Property and Equipment (net of depreciation)	1,318,575	1,322,463
Other Assets	157,295	129,720
Deferred Charges	22,409	22,578
Goodwill and Other Intangible Assets	43,563	8,431
Total Non-Current Assets	$1,565,705	1,508,912
TOTAL ASSETS	**$2,041,602**	**$2,040,184**
LIABILITIES & EQUITY		
Current Liabilities:		
Notes Payable	$69,587	$80,795
Accounts Payable	119,835	142,346
Accrued Liabilities	304,948	253,541
Other Current Liabilities	20,373	26,837
Advance Payments/Deposits	6,787	1,718
Total Non-Current Liabilities	521,530	$505,237
Non-Current Liabilities:		
Long Term Debt	$794,468	$873,718
Other Liabilities	105,172	105,766
Deferred Credits	97,672	90,978
Total Non-Current Liabilities	$997,312	$1,070,462
Total Liabilities	$1,518,842	$1,575,699
Owner's Equity:		
Invested Capital	$188,157	$150,379
Treasury Stock	2,451	2,451
Retained Earnings	337,054	316,557
Total Owners' Equity	$522,760	$464,485
TOTAL LIABILITIES AND OWNERS' EQUITY	**$2,041,602**	**$2,040,184**

Appendix II: (continued)
Statement B--Income Statement for Fiscal Years Ending in 1989 and 1988

	1988	1989
(stated in thousands)		
Shipping Revenue	$2,225,520	$2,093,429
Other Shipping Operations Revenue	104,752	101,387
Total Revenue from Shipping Operations	2,330,272	$2,194,816
Shipping Expense	$705,011	$653,958
Operating-Differential Subsidy	(231,663)	(214,432)
Shipping Port Call Expense	83,671	81,457
Cargo Handling Expense	1,134,609	1,066,425
Inactive Vessel Expense	5,076	3,862
Other Shipping Operations Expense	83,055	64,343
Total Expense of Shipping Operations	$1,779,759	$1,655,613
Gross Income from Shipping Operations	$550,513	$539,203
Other Revenue	46,210	39,199
Other Expense	17,190	9,697
General and Administrative Expense	339,690	310,615
Depreciation and Amortization Expense	124,504	71,538
Interest Expense	87,781	82,355
Net Income Before Income Taxes	$27,558	$104,197
Provision for Income Taxes	11,656	33,334
Net Income After Income Taxes	$15,902	$70,863
Effect of Change in Accounting Policy	2,023	(1,187)
Income or Loss from Extraordinary Items	(9,927)	(3,823)
NET INCOME	$7,998	$65,853

(Data from the Financial Report, Form MA-172, filed by 17 subsidized companies.)

APPENDIX III: TECHNICAL AND PROGRAM STUDIES–FISCAL YEAR 1990

Project	Task	Vendor	Contract Number	Amount
Cargo Operations:				
Cargo Handling Cooperative Program	Carry out research, development, test and evaluation of new technologies, systems, and methods directed at increasing the cargo handling productivity of U.S.-flag carriers.	American President Lines, Ltd. Matson Terminals Inc. Sea-Land Service Crowley Maritime	MA-11715	$300,000*
Improvements in Rail and Container Operations	A joint MARAD/Defense Logistics Agency project to improve rail and container transportation at six DLA depots.	Leeper, Cambridge, & Campbell Alexandria, VA	90-00019	$126,082**
Fleet Management:				
Improved Ocean Weather Forecasts	Provide improved ocean weather observation data used in validating the results of NOAA's weather forecasts.	National Oceanic and Atmospheric Administration Rockville, MD	MA-0-A51	$ 49,400
Marine Science:				
Ship Structure Committee	MARAD's share to participate in the Ship Structures Committee FY 90 Program.	U.S. Coast Guard Washington, DC	MA-0-A37	$ 75,000
Maritime Safety:				
Free Fall Lifeboat	Examines the applicability of the free fall lifeboat on U.S. vessels studying design options, economics, and engineering and regulatory difficulties.	C.R. Cushing, & Co. New York, NY	90-00027	$ 68,117
Modular Maneuvering Mathematical Models	Addresses the problem of exchange of maneuvering mathematical model data. Many different models are used by ship handling simulators and designers and exchange of data is very difficult. This effort brings together the experts through the Society to develop standardized methods for exchange of data.	Society of Naval Architects and Marine Engineers Jersey City, NJ	MA-CA-0001	$ 30,000*
Maritime Technology Analysis:				
Marine Board FY 90	To continue support of the Marine Board of the National Academy of Sciences during FY 90.	Dept. of Interior Washington, DC	MA-0-A35	$100,000

*Cost Shared
**Cost Reimbursable

APPENDIX III: Continued

Project	Task	Vendor	Contract Number	Amount
Marine Transportation Strategic Planning Processes for the 21st Century	Perform an assessment of marine transportation strategic planning processes for the 21st century. Includes many components of the marine transportation community in evaluating strategic planning processes, determining those processes most appropriate for each component.	Transportation Research Board Washington, DC	MA-CA-90017	$ 50,000
Ship Performance:				
Shipboard Evaluation of a Piloting Expert System - Phase II	Design, develop, test, install, and evaluate an operational shipboard piloting expert system for decision support in restricted waters.	Rensselaer Polytechnic Institute Troy, NY	89-90031	$198,382*
Ship of the Future-2000 National Conference/Workshop	This May 14-16, 1990, Conference and Workshop formed and brought together eleven separate committees to discuss technology developments, innovations, and market changes for the 2000-2025 time period. Potential ship designs for the period formed a focus for the groups to develop recommendations and initiatives for future technology developments.	Society of Naval Architects and Marine Engineers Jersey City, NJ	90-00452	$ 3,375
		National Institute for Standards and Technology Gaithersburg, MD	MA-0-A66	$ 4,000
Technology Transfer:				
Maritime Technical Information Facility (MTIF)	To provide support for the operation of the MTIF in FY 90. MTIF maintains a broad collection of maritime technical literature and operates an on-line automated information retrieval system.	Seatrack Great Neck, NY	90-00003 0	$194,982
University Studies:				
Innovative Breakbulk Technology and Its Impact on Waterfront Utilization	Addresses the problem of assessing and introducing new technology for cargo-handling in breakbulk terminals. Design and develop an interactive analytical tool to assist port personnel in testing investments in new technology or operational procedure changes.	Louisiana State University Baton Rouge, LA	MA-CA-00010	$ 50,632
Inspection and Maintenance Impact on Safety and Reliability of Tanker Structures	Assess the impact of inspection and repair programs on the reliability of tanker structure including the effects of corrosion and fatigue damage. Different strategies of maintenance will be identified.	University of California Berkeley, CA	MA-CA-00031	$ 49,368

APPENDIX III: Continued

Project	Task	Vendor	Contract Number	Amount
Waterway Development:				
Baldwin Ship Channel, Phase III	As a result of previous studies on the Baldwin Ship Channel, the U.S. Army Corps of Engineers found it necessary to redesign the West Richmond Channel and the Pinole Shoal Channel. They requested CAORF services to modify the Baldwin Channel computer models and test the revised channel designs.	Marine Safety International Kings Point, NY	88-80024 Task Order 1	$138,813**
Port and Intermodal:				
Landside Port Access Study	To assess impediments and potential strategies for improving landside access to U.S. ports.	Transportation Research Board Washington, DC	MA-CA-90017 Task Order #3	$275,000*
Federal Port Controllers Management Information System	To provide the Federal port controllers with an automatic management information system.	Mark Newmister Baltimore, MD	90-P-00290	$ 8,600

*Cost Shared
**Cost Reimbursable

Appendix IV: STUDIES AND REPORTS RELEASED IN FISCAL YEAR 1990

The following major studies or reports were released by the Maritime Administration (MARAD) during fiscal year 1990.

A limited number of copies of publications marked [MARAD] are available from the Agency's Office of External Affairs. Those labelled [NTIS] may be purchased from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161 (Telephone: 703/487-4650).

MARAD 1989 (The Annual Report of the Maritime Administration for Fiscal Year 1989), prepared by the Maritime Administration, 73pp [MARAD].

A Report to the Congress on the Status of the Public Ports of the United States 1988-1989, prepared by the Maritime Administration, April 1990 29pp [MARAD].

Relative Cost of Shipbuilding, prepared by the Maritime Administration, October 1990, 41pp [MARAD].

Service Guide '90–Ship Your Cargo on U.S.-Flag Ships, prepared by the Maritime Administration, 8pp [MARAD].

Vessel Inventory Report, July 1, 1989, prepared by the Maritime Administration, 63pp [MARAD].

Container Bulk Wheat Flour [NTIS], PB90-216953/AS $17

Development of a Prototype for a Shipboard Contingency Planning System [NTIS].

Vol. 1	Executive Summary	PB90-185885/AS	$17
Vol. 2	Software Description Data Base Generation	PB90-185893/AS	$23
Vol. 3	Source Code Listings	PB90-185901/AS	$39
	SET	PB90-185877/AS	$67.50

Note: Reports prepared or issued by the Maritime Administration in previous years are listed in *MARAD PUBLICATIONS*, which is available upon request from headquarters and field offices of the Agency.