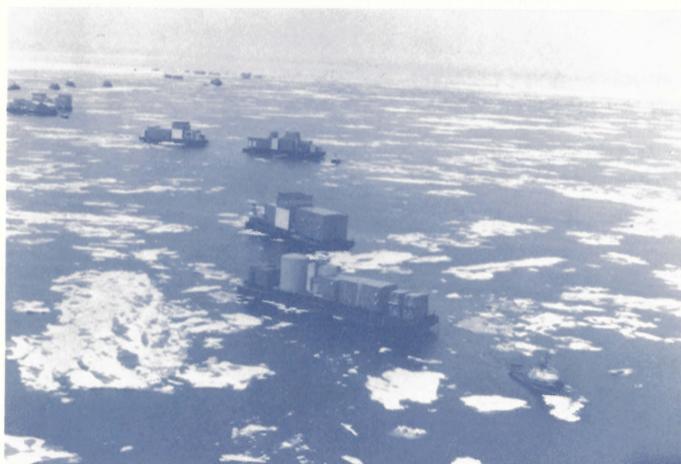
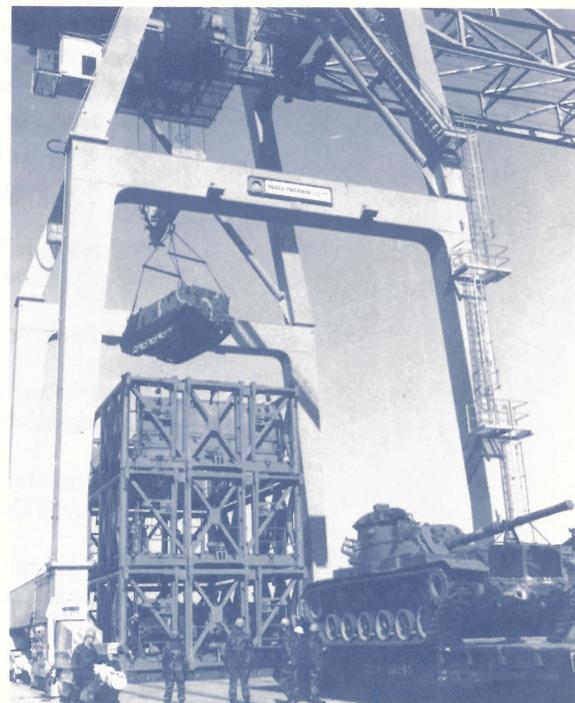
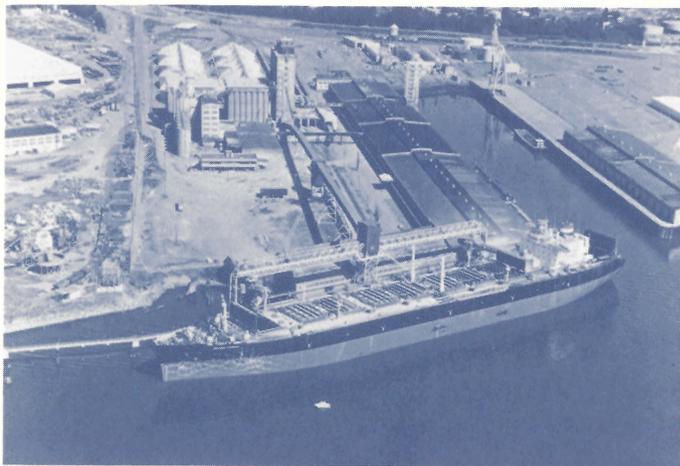


MARAD '83



U.S. Department
of Transportation
**Maritime
Administration**



The Annual Report of the Maritime Administration for Fiscal Year 1983 incorporates the reports required by Congress on the following topics:

Acquisition of Obsolete Vessels in Exchange for Credit

War-Risk Insurance Activities

Scrapping or Removal of Obsolete Vessels Owned by the United States

Ship Sales Activities.

Foreign-Flag Waivers for Recipients of Operating-Differential Subsidies

U.S.-Flag Carriage of Government Sponsored Cargoes

Allocation of Construction- and Operating-Differential Subsidy to Port Ranges*

Claims Arising Under the Admiralty Act*

* No reportable activities occurred during FY 1983

About the first two pictures in this report:

The photograph on page iv shows the 35,000-deadweight-ton chemical tanker CHEMICAL PIONEER, built without subsidy by Newport News Shipbuilding and Drydock Co. for Union Carbide Corp. Vessel was delivered in fiscal year 1983.

Page vi shows operational testing of SEA SHEDs at Sunny Point, N.C. SEA SHEDs are portable structures designed to be installed on containerships to allow loading of military vehicles and other cargo of varied configuration.

MARAD '83

The Annual Report of the
Maritime Administration
for Fiscal Year 1983

U.S. DEPARTMENT OF TRANSPORTATION
Maritime Administration

OCTOBER 1984

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Acknowledgments





THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

OCT 5 1984

The President
The White House
Washington, D.C. 20500

The Honorable George Bush
President of the Senate
Washington, D.C. 20510

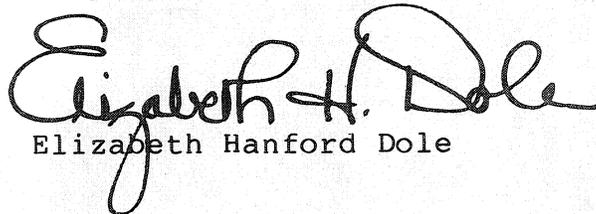
The Honorable Thomas P. O'Neill
Speaker of the House
of Representatives
Washington, D.C. 20515

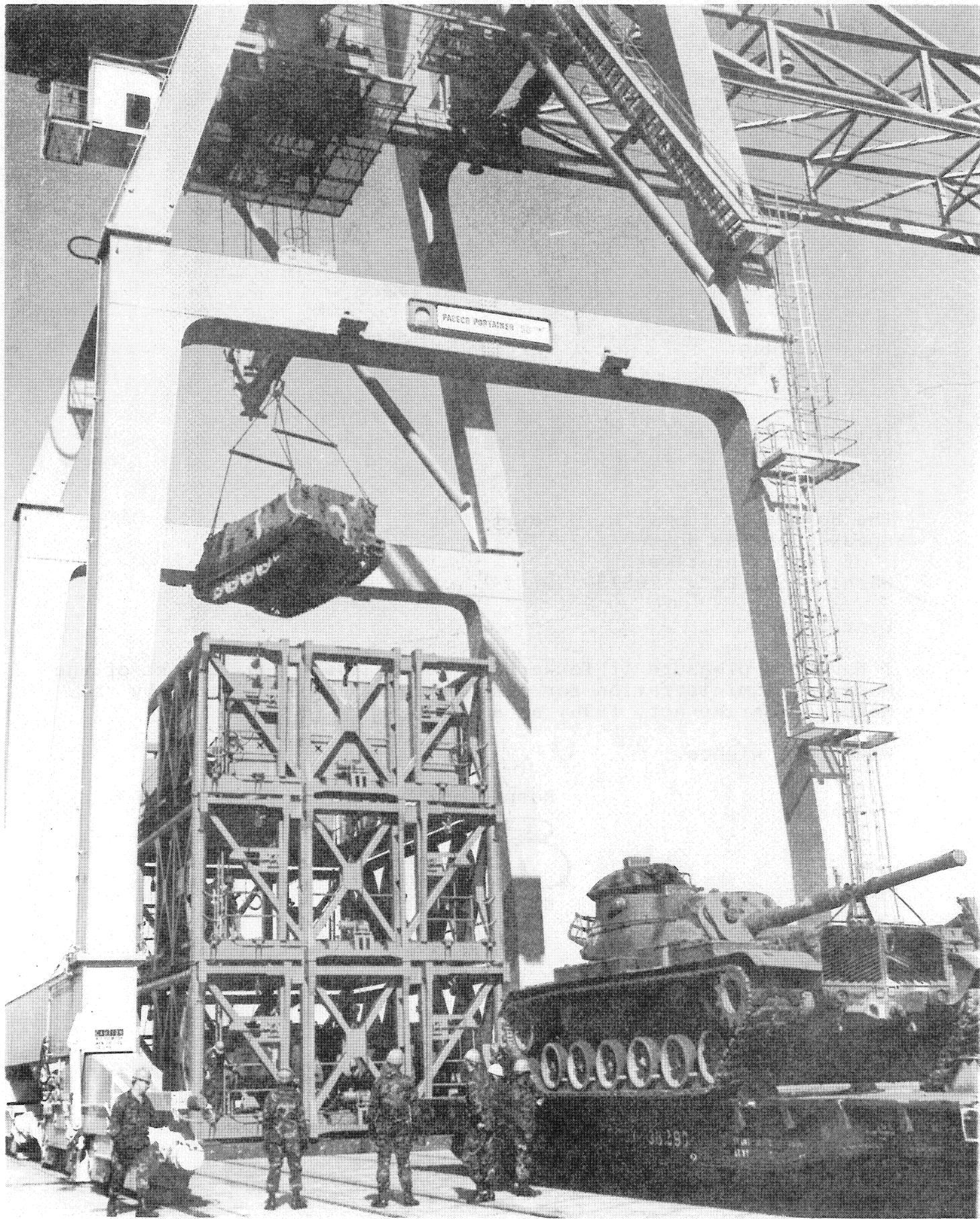
Dear Sirs:

I have the pleasure of forwarding to you the annual report of the Maritime Administration for fiscal year 1983 as required by the Merchant Marine Act, 1936, as amended.

With best wishes.

Respectfully,


Elizabeth Hanford Dole



FOREWORD

The Annual Report of the Maritime Administration (MARAD) is submitted in accordance with the Merchant Marine Act, 1936, as amended. It reviews the Agency's activities in administering Federal maritime programs and pertinent developments which affected the U.S. maritime industry in the fiscal year ending September 30, 1983. Among these developments were the following:

On April 8, 1983, the Secretary of Transportation submitted to the Congress proposed legislation to further the President's policy to bolster the competitiveness and capability of the Nation's merchant marine. The proposals would renew statutory authority for subsidized U.S. ship operators to construct, convert or acquire vessels outside the United States and still be eligible for operating-differential subsidy; permit the use of Capital Construction Funds for acquisition of ships abroad; provide immediate eligibility for ships brought under the American flag to participate in cargo preference programs; encourage foreign investment in but maintain U.S. citizen control of U.S.-flag shipping companies; and repeal a tariff on non-emergency repairs made to U.S.-flag ships in foreign shipyards.

The purpose of the legislation is to remove burdens which adversely affect the U.S.-flag operators in ocean commerce. The Administration continues to believe the enactment of proposals such as these is essential to the future of the American merchant marine.

During the period, under previously granted "build abroad" authority, U.S.-flag operators continued planning and contracting activities for the construction of up to 34 new U.S.-flag ships and the conversion of up to 14 existing ships in foreign shipyards. Through this program, the U.S.-flag fleet will benefit from the influx of modern, efficient vessels without the expenditure of public funds.

Also during FY 1983, the United States Senate approved maritime regulatory reform legislation strongly supported by the Administration. Among other things, the legislation was intended to help U.S.-flag liner operators become more competitive by clarifying ocean liner shipping's antitrust status and removing unnecessary regulatory restraints. (Following subsequent, similar action by the U.S. House of Representatives and the adoption of a conference report, President Reagan signed the Shipping Act of 1984 into law on March 20, 1984.)

Although the Administration's efforts to restore the United States to the rank of a first-class maritime power are far from complete, the actions taken in FY 1983 can make a significant contribution toward that goal.

H. E. SHEAR
Maritime Administrator

Shipbuilding

Under the Merchant Marine Act, 1936, as amended, it is the goal of the United States to develop and maintain efficient shipbuilding and repair capacity with the skilled personnel needed to provide an adequate mobilization base.

Major Contract Awards

During fiscal year 1983, private contracts were awarded to U.S. shipyards for the construction of six major nonsubsidized commercial vessels totaling 150,000 deadweight tons (dwt.). The contracts were for one self-propelled oceangoing hopper dredge and five medium-sized product tankers ordered by a private shipping company for charter to the Military Sealift Command (MSC). (See Table 1.)

The Maritime Administration (MARAD) awarded no construction-differential subsidy (CDS) contracts in FY 1983.

During the period, eight U.S. commercial shipyards were awarded contracts under the U.S. Navy's T-Ship Program for the construction of 20 new ships and the major reconstruction of 14 existing merchant ships. The newbuildings included 2 fleet oilers, 12 ocean surveillance ships, 1 cable repair ship, and 5 maritime prepositioning ships. Conversion contracts included four fast sealift ships, eight maritime prepositioning ships, one hospital ship, and one auxiliary crane ship. The crane ship contract was awarded by MARAD for the Navy as the first ship of an 11-ship program.

Ships in the Navy's T-Ship Program are mission oriented. Some are owned by the Government and operated by the MSC. Others are privately owned and chartered to the MSC.

Vessels on Order

At the end of FY 1983, 15 deep-draft commercial vessels totaling 440,000 dwt. and valued at \$932.8 million were under construction in American shipyards. (See Table 2.) One, a product tanker, was being built with CDS and also was participating in the Federal Ship Financing Guarantee (Title XI) Program. Four of the 14 non-subsidized ships also were participating in the Title XI program.

One major nonsubsidized merchant ship conversion was underway at the end of the reporting period, and four offshore oil-drilling rigs were under construction or on order.

Ship Deliveries

Sixteen new deep-draft commercial vessels totaling 330,860 dwt. were delivered by American shipyards in FY 1983. (See Table 3.)

Eight of the vessels delivered were subsidized:

- Three 2,500-TEU containerships, PRESIDENT LINCOLN, PRESIDENT WASHINGTON, and PRESIDENT MONROE, built by Avondale Shipyards, Inc., for American President Lines, Ltd., for the transpacific service;
- The 36,000-dwt. dry-bulk carrier SPIRIT OF TEXAS, built by Livingston Shipbuilding Co. for Asco-Falcon III Shipping Co. for worldwide service;
- The 34,000-dwt. product tanker FALCON LEADER, built by Bath Iron Works Corp. for Falcon I Sea Transport Co. for charter to the MSC; and
- Three roll-on/roll-off (RO/RO) containerships, the JOHN B. WATERMAN and THOMAS HEYWARD, built by Sun Shipbuilding Co., and the CHARLES CARROLL, built by General Dynamics Corp., Quincy, Mass., for Sun Shipbuilding. These vessels did not enter commercial service and were selected for conversion to maritime prepositioning ships for

long-term charter to the U.S. Navy.

These deliveries brought to 79 the number of subsidized ships contracted for and delivered since enactment of the Merchant Marine Act of 1970.

The eight nonsubsidized commercial vessels delivered in FY 1983 were:

- Three 44,000-dwt. product tankers, CHESAPEAKE TRADER, DELAWARE TRADER, and POTOMAC TRADER, built by National Steel and Shipbuilding Co. for American Trading Transportation Co. for the U.S. domestic trade;
- Two 47,000-dwt. oceangoing tug/barge vessels, NEW YORK and BALTIMORE, built by Bethlehem Steel Corp. at Sparrows Point, Md., with tug construction sub-contracted to Halter Marine Co., for Amerada Hess Corp. for carrying petroleum products in the U.S. domestic trade;
- The 37,500-dwt. product tanker HUNTER ARMISTEAD, delivered by National Steel and Shipbuilding Co. to Hartford National Bank and Trust Co. to be operated by Tanker Management, Inc., in the U.S. domestic trade;
- The 32,300-dwt. coal-fired collier ENERGY INDEPENDENCE, built by General Dynamics Corp., Quincy, for New England Collier Co. for carrying coal in U.S. coastwise service; and
- The 35,000-dwt. chemical tanker CHEMICAL PIONEER, built by Newport News Shipbuilding and Drydock Co. for Union Carbide Corp. for service in the U.S. domestic trade.

Table 4 shows merchant ship deliveries by major shipbuilding nations during calendar year 1982.

Title XI Guarantees

Title XI of the Merchant Marine Act of 1936, as amended, established the Federal Ship Financing Guarantee Program. As originally enacted, Title XI authorized the

Table 1: MAJOR PRIVATE SHIP CONSTRUCTION CONTRACTS AWARDED IN FY 1983

Owner	Shipbuilder	Type	No. Vessels	Total Deadweight Tons	Est. Completion Date	Total Est. Cost (Millions)
Ocean Carriers, Inc.	Tampa Ship	Product Tanker	5	150,000	2/86	\$288.6
North American Trailing Co.	Southern SB	Self-Propelled Dredge	1	—	12/83	25.0
Total Private Contracts—FY 1983			6	150,000		\$313.6

Federal Government to insure private-sector loans or mortgages made to finance or refinance the construction or reconstruction of American-flag vessels in U.S. shipyards.

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 insures or guarantees full payment to the lender of the unpaid principal and interest of the mortgage or obligation in the event of default by the vessel owner.

Title XI guarantees of approximately \$322 million covering 111

vessels were conditionally approved by MARAD during FY 1983. (See Table 5.)

Based on previous Title XI commitments, guarantees were issued covering a total of 572 vessels during this reporting period.

As of September 30, 1983, Title XI guarantees in force amounted to approximately \$7.8 billion. Active pending applications on that date represented approximately \$583 million in requests for additional guarantees. (See Table 6.)

During FY 1983, Congressional authority for the Title XI program was \$12 billion, with \$9.5 billion allocated to MARAD, \$1.65 billion reserved for use by the Department of Energy in 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 total costs of the Title XI program, including salaries of the MARAD staff assigned to the merchant ship financing program, are underwritten by fees which are paid by users. The insurance premiums and guarantee fees go into the Federal Ship Financing Fund, a revolving fund which may be used for payment of any defaults. In FY 1983 MARAD paid \$91.2 million as a result of nine defaults involving 41 vessels.

During FY 1983, the Federal Ship Financing Fund had a net income of \$41,966,353.

Table 2: SHIP CONSTRUCTION UNDER CONTRACT—SEPTEMBER 30, 1983

Owner	Shipbuilder	Ship Type ¹	No. of Ships	Total Deadweight Tons	Est. Completion Date	Est. Cost (Millions)	Government Participation ²
New Construction:							
Amerada Hess Corp.	Bethlehem Steel	ITB	2	94,000	Indef.	\$ 143.6	MG
Apollo Co.	Tacoma Boatbuilding	I	2	12,400	9/84	74.7	MG
Exxon Company, USA	Avondale Shipyards	PT	2	86,000	2/84	200.0	None
Exxon Company, USA	Avondale Shipyards	COT	1	58,300	7/84	100.0	None
Falcon II Sea Transport Co.	Bath Iron Works	PT	1	34,000	1/84	71.0 ³	CDS, MG, NDF
North American Trailing Co.	Southern Shipbuilding	D	1	—	12/83	25.0	None
Ocean Carriers, Inc.	Tampa Shipyards	PT	5	150,000	2/86	288.6	⁴
Shell Offshore	Marinette Marine	R	1	4,880	12/83	30.0	None
Total New Construction			15	439,580		\$932.9	
Conversions:							
Ogden Columbia Transport, Inc.	Avondale Shipyards	COT	1	136,000	11/83	\$ 48.0	MG

¹ COT = Crude Oil Tanker; D = Self-Propelled Dredge; I = incinerator ship; ITB = integrated tug/barge; PT = Product Tanker; R = Research Ship.

² Construction-differential subsidy (CDS), Title XI mortgage guarantees (MG), and national defense features (NDF).

³ Total contract cost including CDS & NDF, but excluding engineering & change orders.

⁴ Military Sealift Command build and charter contract.

Table 3: NEW COMMERCIAL SHIPS DELIVERED FROM U.S. SHIPYARDS DURING FY 1983

Owner	Builder	Vessel Type	Vessels
Subsidized			
American President Lines, Ltd.	Avondale Shipyards	Containership	3
Asco-Falcon III Shipping Co.	Levingston SB	Dry Bulk	1
Falcon I Sea Transport Co.	Bath Iron Works	Product Tanker	1
Waterman Steamship Corp.	Sun Ship	RO/RO Containership	2
Waterman Steamship Corp.	Gen. Dynamics-Quincy ¹	RO/RO Containership	1
Total Subsidized Deliveries			8
Nonsubsidized			
American Trading Transportation Co.	National Steel & SB Co.	Product Tanker	3
Amerada Hess Corp.	Beth.-Sparrows Point/Halter	Integrated Tug/Barge	2
Hartford Nat. Bank & Trust Co.	National Steel & SB Co.	Product Tanker	1
New England Collier Co.	General Dynamics-Quincy	Coal-fired Collier	1
Union Carbide Corp.	Newport News SB	Chemical Tanker	1
Total Nonsubsidized Deliveries			8
Total New Ships Delivered FY 1983			16

¹ General Dynamics, Quincy, Mass., built this vessel for Sun Ship.

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 eligible deposits.

The CCF program enables operators to build vessels for the U.S. foreign trade, the Great Lakes

trade, the 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, LASH vessels, other types of cargo ships, tankers, bulk carriers, tugs, barges, supply vessels, ferries, and passenger vessels.

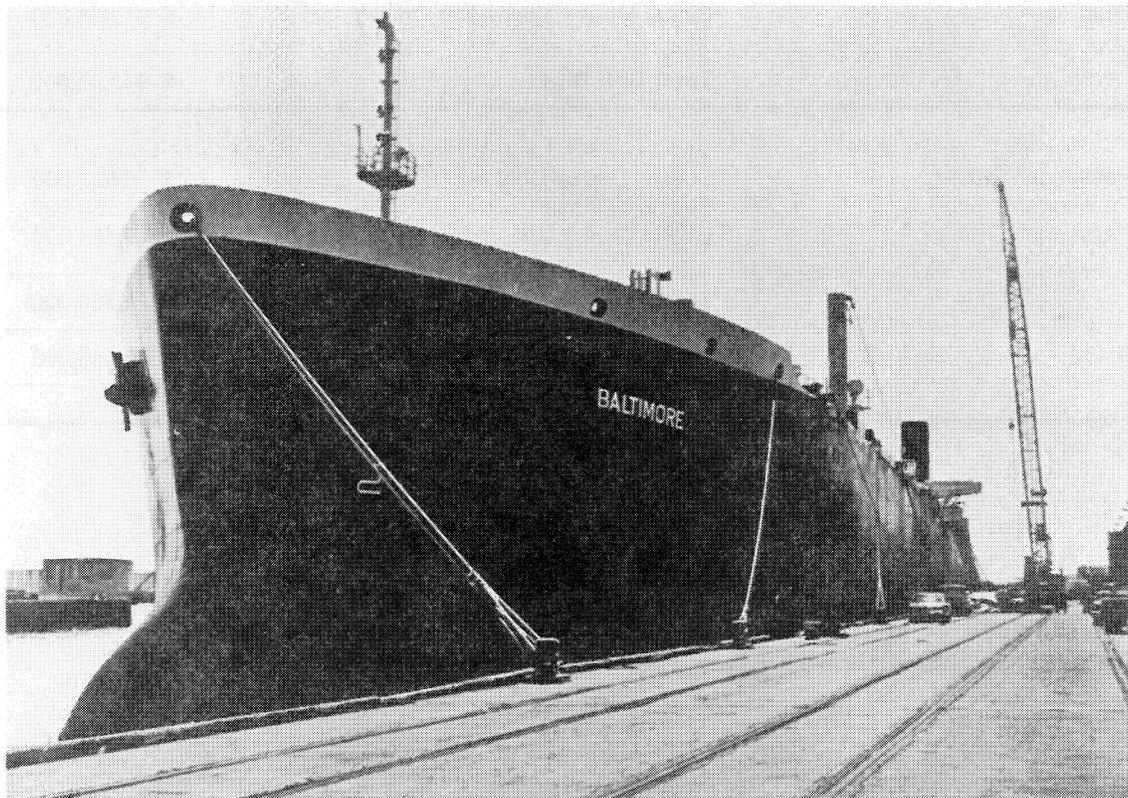
During FY 1983, \$198 million was deposited in these accounts. Since the program was initiated in 1971, fund holders (shown in Table 7)

have deposited \$3.3 billion in CCF accounts and withdrawn \$2.4 billion for the modernization and expansion of the U.S. merchant marine.

The total value of projects completed or begun by CCF holders is approximately \$5.5 billion. The 127 fund holders had projected expenditures under this program totaling \$3.2 billion. Of this total, \$2 billion is projected for vessels operating in the U.S. foreign trade, \$787 million for the noncontiguous domestic trade, and \$453 million for the Great Lakes trade.

Table 4: WORLDWIDE SHIP DELIVERIES—CALENDAR YEAR 1982 (TONNAGE IN THOUSANDS)

Country of Construction	Total All Types		Combination Pass. & Cargo		Freighters		Bulk Carriers		Tankers	
	No.	Deadweight Tons	No.	Deadweight Tons	No.	Deadweight Tons	No.	Deadweight Tons	No.	Deadweight Tons
Total	724	21,418.0	2	10.8	276	2,610.5	254	13,286.9	192	5,509.8
United States	11	449.6	—	—	2	65.6	4	157.6	5	226.4
Brazil	18	587.4	—	—	3	36.1	13	454.3	2	97.0
Denmark	20	622.2	—	—	9	120.4	6	445.5	5	56.3
Finland	15	194.3	—	—	4	25.4	—	—	11	168.9
France	16	264.5	2	10.8	6	108.0	—	—	8	145.7
Germany (Fed. Republic)	34	567.1	—	—	23	299.4	3	173.2	8	94.5
Italy	10	210.2	—	—	5	62.9	2	113.7	3	33.6
Japan	348	11,895.5	—	—	118	956.4	145	7,939.3	85	2,999.8
Korea (Republic of)	43	1,913.9	—	—	15	136.7	18	1,571.4	10	205.8
Netherlands	17	130.3	—	—	14	75.1	1	11.8	2	43.4
Norway	19	326.2	—	—	4	23.2	—	—	15	303.0
Poland	8	160.9	—	—	6	94.4	2	66.5	—	—
Spain	37	632.1	—	—	24	173.6	8	245.8	5	212.7
Sweden	12	369.8	—	—	2	55.4	5	242.5	5	71.9
U.S.S.R.	12	208.4	—	—	7	35.3	2	109.6	3	63.5
United Kingdom	18	500.7	—	—	4	42.0	8	330.0	6	128.7
Yugoslavia	11	315.2	—	—	5	42.5	1	69.1	5	203.6
All Others	75	2,069.7	—	—	25	258.1	36	1,356.6	14	455.0



The BALTIMORE is one of two 47,000-deadweight-ton oceangoing tug/barge vessels built by Bethlehem Steel Corp. at Sparrows Point, Md., for Amerada Hess Corp. and delivered in FY 1983. Tug construction was subcontracted to Halter Marine Co.

Table 5: SHIP FINANCING GUARANTEES—COMMITMENTS APPROVED IN FY 1983

Number	Type of Vessel	Company	Amount Guaranteed
Deepdraft Vessels:			
1	Tanker	Union Marine Transport Co.	\$87,342,000
1		Total Deepdraft Vessels	\$87,342,000
Other Types:			
Ocean:			
5	Barges	Puget Sound Tug & Barge Co., Inc.	\$ 16,700,000
1	Barge	Lamberts Point Barge Co.	15,650,000
11	Barges	Marine Logistics Corp.	37,011,700
6	Tugs	Marine Logistics Corp.	21,240,300
23		Total Ocean	\$ 90,602,000
River:			
10	Barges	Commercial Barge Line Limited Partnership I	\$ 1,716,000
32	Barges	Fabrikant/Conway Applicants	5,937,000
2	Tugs	Fabrikant/Conway Applicants	7,180,000
35	Barges	Alter Barge Line, Inc.	6,611,600
1	Tug	Alter Barge Line, Inc.	2,375,400
1	Tug	Mystic Marine Towing Partners	4,009,000
81		Total River	\$ 27,829,000
Drill Rigs:			
3	Drill Rigs	Global Marine Deepwater Drilling, Inc.	\$ 94,833,000
3		Total Drill Rigs	\$ 94,833,000
Miscellaneous:			
1	Passenger Cruise	Coastal Cruise Line, Inc.	\$ 6,537,000
1	Passenger Cruise	Republic Cruise Line, Inc.	7,269,000
1	Passenger Cruise	Liberty Cruise Line, Inc.	7,554,000
3		Total Miscellaneous	\$ 21,360,000
111		Total Vessels	\$321,966,000

Table 6: FEDERAL SHIP FINANCING GUARANTEE (TITLE XI) PROGRAM SUMMARY
(Statutory Limit \$9.5 Billion) Principal Liability on September 30, 1983

Vessel Types	Contracts in Force		Active Applications	
	Vessels Covered	Principal Amount*	Vessels Covered	Principal Amount*
Deep-draft Vessels:				
Tankers	83	\$2,031,604,037	4	\$ 45,487,500
Cargo	132	1,048,160,000	6	174,060,000
LNGs	16	1,224,697,000	0	0
Bulk/OBOs	23	393,738,829	0	0
Total	254	\$4,698,199,866	10	\$219,547,500
Other Types:				
Drill Rigs/Ships	82	\$ 995,782,054	4	\$103,800,000
Tugs/Barges/Drill Service	4,016	1,854,952,286	231	232,498,216
Miscellaneous	21	227,525,320	5	28,005,000
Total	4,119	\$3,078,259,660	240	\$364,303,216
Total Vessels	4,373	\$7,776,459,526	250	\$583,850,716
Shipboard Lighters	2,118	\$ 64,999,360	0	\$ 0
Total	6,491	\$7,841,458,886	250	\$583,850,716

* Rounded to the nearest dollar.

Construction Reserve Fund

The Construction Reserve Fund (CRF), like the CCF, 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 three years.

The CRF is used predominantly 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 remained at nine during FY 1983. Total deposits increased from \$8.5 million to \$10.2 million. (See Table 8.)

National Defense Features

The Merchant Marine Act of 1936, as amended, requires close cooperation between MARAD and the U.S. Navy to ensure that merchant ships can be rapidly adapted to meet national defense requirements. The Secretary of the Navy examines plans and specifications for vessels proposed for CDS or operating-differential subsidy and suggests changes which may be necessary for defense purposes.

In addition, the Secretary of the Navy certifies that the vessels are suitable for economical and speedy conversion into naval auxiliaries or are otherwise suitable for use in time of war or national emergencies.

MARAD and the Department of the Navy signed a Memorandum of Understanding during the year to

establish a policy and outline responsibilities for changes suggested by the Navy. One provision requires vessel owners to incorporate National Defense Features in new construction or major conversion projects, up to a limit of 2 percent of the price of the ship or conversion. Previously, such changes were financed from the CDS account.

Ship Design and Engineering

During FY 1983, MARAD oversaw the design and conversion of a Government-owned containership, formerly known as the PRESIDENT HARRISON, into the first of a planned series of naval auxiliary crane ships.

The work, including the installation of three sets of large marine twin cranes, was performed at Bay

Table 7: CAPITAL CONSTRUCTION FUND HOLDERS—SEPTEMBER 30, 1983

A & A Boats, Inc.	Eserman Offshore Service, Inc.	Miller Boat Line, Inc.
A & G Corp.	Exxon Shipping Co.	Monticello Tanker Co.
Aeron Marine Shipping Co.	Falcon Alpha Shipping, Inc.	Montpelier Tanker Co.
Alaska Riverways, Inc.	Falcon Funding, Inc.	Moody Offshore, Inc.
Amak Towing Co., Inc.	Falcon World Shipping, Inc.	Moore McCormack Resources, Inc.
AMC Boats, Inc.	Farrell Lines, Inc.	Mount Vernon Tanker Co.
American Atlantic Shipping, Inc.	Ford Motor Co.	Mount Washington Tanker Co.
American President Lines, Inc.	Foss Alaska Lines, Inc.	Neuman Boat Line, Inc.
American Shipping, Inc.	Foss Launch and Tug Co.	Nicor, Inc.
Andover Co., Ltd.	Fred Devine Diving & Salvage, Inc.	O.L. Schmidt Barge Lines, Inc.
Aquarius Marine Co.	Garber Bros., Inc.	Ocean Carriers, Inc.
Ashland Alpha III Shipping, Inc.	GATX Corp.	Offshore Marine, Inc.
Ashland Oil, Inc.	G & B Marine Transportation, Inc.	Ogden Corp.
Atlantic Richfield Co.	General Electric Credit and Leasing Corp.	Oglebay Norton Co.
Atlas Marine Co.	General Electric Credit Corp. of Delaware	Overseas Bulktank Corp.
Bankers Trust of New York Corp.	General Electric Credit Corp. of Georgia	Pacific Hawaiian Lines, Inc.
Bethlehem Steel Corp.	George Steinbrenner III	Petro-Boats, Inc.
Binkley Co.	Gilco Supply Boats, Inc.	Petrolane Inc.
Blue Lines, Inc.	Graham Boats, Inc.	Powers-Carr Equipment Co.
Brice Inc.	Great Lakes Towing Co.	Prince William Navigation Co.
C & G International, Inc.	Hannah Brothers	Prudential Lines, Inc.
C & G Marine Service, Inc.	Hannah Marine Corp.	Reynolds Leasing Corp.
Cambridge Tankers, Inc.	Houston Natural Gas Corp.	Ritchie Transportation Co.
Campbell Towing Co.	Hvide Shipping, Inc.	Seabulk Tankers, Ltd.
Canonie Offshore, Inc.	Inland Steel Co.	Sea Savage, Inc.
Canonie Transportation, Inc.	Inter-Cities Navigation Corp.	Seal Fleet, Inc.
Cement Transit Co./Medusa Corp.	Intercontinental Bulktank Corp.	Smith Lighterage Co., Inc.
Central Gulf Lines, Inc.	International Offshore Marine Services, Inc.	Steel Style Marine
Citimarlease (Burmah I), Inc.	Interstate Marine Transport Co.	State Boat Corp.
Citimarlease (Burmah LNG Carrier), Inc.	Interstate Towing Co.	Sun Co., Inc.
Citimarlease (Burmah Liquegas), Inc.	ITC Towing Co.	Tidewater, Inc.
Citimarlease (Fulton), Inc.	John E. Graham & Sons	Totem Resources Corp.
Citimarlease (Whitney), Inc.	Kinsman Lines, Inc.	Transway International Corp.
Cleveland-Cliffs Iron Co.	Leppaluoto Offshore Marine, Inc.	Tug Alaska Mariner, Inc.
Cook Inlet Tug & Barge Co.	L & L Marine Services, Inc.	Tug Ocean Mariner, Inc.
Crowley Maritime Corp.	Luedtke Engineering Co.	Union Oil Co. of California
CSI Hydrostatic Testers, Inc.	Lykes Bros. Steamship Co.	United States Cruises, Inc.
Delta Steamship Lines, Inc.	Madeline Island Ferry Line, Inc.	United States Lines, Inc.
Dillingham Tug & Barge	Matson Navigation Co., Inc.	Waterman Steamship Corp.
Edward E. Gillen Co.	Middle Rock, Inc.	Western Pioneer, Inc.
El Paso Arzew Tanker Co.		Windjammer Cruises, Inc.
El Paso Howard Boyd Tanker Co.		Worth Oil Transport Co.
El Paso Southern Tanker Co.		Young Brothers, Ltd.
		Zidell, Inc.

Shipbuilding Corp., Sturgeon Bay, Wis. Redelivery was scheduled for May 1984.

To be known as the T-ACS 1, the converted ship will be used at anchor in a forward deployment area or an undeveloped port to unload cargo in a forward deployment area from containerships lacking their own cargo-handling equipment.

MARAD also designed and supervised the conversion of a deck cargo barge to a crane barge. It was delivered to the Navy for use in testing crane motion compensation systems to be installed on future auxiliary crane ships.

Also during FY 1983, MARAD:

- Investigated the possibility of converting various classes of inactive ships into training vessels for use by State maritime academies;
- Studied several types of commercial vessels in the National Defense Reserve Fleet for possible conversion into military support vessels;
- Developed specifications and drawings for the re-engining of reserve fleet tugboats and assisted in the installation of an engine in one tug;
- Evaluated communications equipment for reserve fleet vessels and recommended replacements and additions;

- Prepared the reconversion plans for LASH vessels which have been converted to containerships, to permit rapid return to LASH configuration in time of national emergency;
- Participated in the work of the American Society for Testing and Materials in developing shipbuilding standards and in the conversion of Navy military specifications to commercial standards;
- Designed and provided engineering assistance in modifications to the engine room of the training ship EMPIRE STATE to improve safety as recommended by the National Transportation Safety Board; and
- Continued engineering design work for a large shallow-draft collier.

Shipyard Improvements

During FY 1983, the American shipbuilding and ship repair industry invested \$321 million in facilities modernization and expansion. Plans were underway to spend an additional \$217.8 million in FY 1984 for larger drydocks and support facilities to increase vessel conversion, overhaul, and repair capabilities. Several yards also had

plans to prepare for an anticipated increase in naval ship construction.

Since enactment of the Merchant Marine Act of 1970, the U.S. shipbuilding and ship repair industry has invested approximately \$3.1 billion in plant modernization and improvements.

Disadvantaged Business/Women's Business Enterprise Program

In 1974, MARAD initiated a program to encourage shipping and shipbuilding firms to use minority suppliers and vendors. During 1981, the program was expanded to include all businesses determined to be disadvantaged under the guidelines of the Small Business Administration. The promotion of women's business enterprise became part of the program in 1979.

Subcontracting clauses which specifically address the utilization of minority and women-owned businesses are included in all CDS contracts. Agency representatives have been designated in the headquarters and in each of the Agency's regional offices to serve as a liaison between disadvantaged and women's businesses and the maritime industry.

Table 8: CONSTRUCTION RESERVE FUNDS—SEPTEMBER 30, 1983

Company	Balance
Cargo Carriers, Inc.	\$ 3,174,961
Central Gulf Steamship, Inc.	1,000
Gulf Mississippi Marine Corp.	100
Joan Turecamo, Inc.	3,876
Ingram Industries, Inc.	100
Keystone Shipping Co.	1,412,178
Kurz Marine	765,330
Lee-Vac, Ltd.	869,266
Mobil Oil Corp.	3,925,534
Total September 30, 1982	\$10,150,345
Net Increase Fiscal Year 1983	\$1,662,375

Chapter 2

Ship Operations

At the end of fiscal year 1983, the U.S.-flag privately owned, deep-draft merchant fleet (including the Great Lakes fleet listed in Table 17) totaled 696 vessels with an aggregate carrying capacity of 24.9 million deadweight tons (dwt.).

U.S. Fleet Profile

On September 30, 1983, the oceangoing segment of the U.S.-flag merchant fleet consisted of 553 vessels of 21.8 million dwt., of which 448 ships of 17.4 million dwt. were active. The latter comprised 65 breakbulk cargo ships, 123 inter-

modal vessels (containerships, barge-carrying vessels, and roll-on/roll-off vanships known as RO/ROs), 5 combination passenger-cargo ships, 17 integrated tug/barge vessels, 213 tankers, 19 bulk carriers, and 6 liquefied natural gas (LNG) carriers. (See Table 9.)

Of the 105 inactive vessels, 12 were temporarily inactive, either awaiting cargoes or undergoing repairs, and 93 were laid up.

Employment of the U.S.-flag oceangoing fleet at the end of the reporting period is shown in Table 10.

As of January 1, 1983, the privately owned American-flag fleet ranked eighth in the world on a dwt. basis and eleventh on the basis of number of ships. (See Table 11.)

Commercial cargoes carried by ships of all flags in the U.S. oceanborne foreign trade totaled 676 million tons in calendar year 1982.

U.S.-flag tonnage declined by 3 million tons, but the U.S.-flag share of total tonnage increased slightly over the previous year.

Commercial cargoes transported in U.S. oceanborne foreign trade from 1972 through calendar year 1982 are shown in Table 12. The table shows the portion carried by U.S.-flag vessels, by tonnage and value.

Operating-Differential Subsidy

U.S.-flag vessels which operate in essential foreign trades are eligible for operating-differential subsidy (ODS). 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 1983 amounted to \$368.2 million.



Two of American President Lines' three new containerships pass in Kobe, Japan. Built by Avondale Shipyards, Inc., and delivered in FY 1983, each vessel can carry 2,500 twenty foot containers.

Table 9: U.S. OCEANGOING MERCHANT MARINE—SEPTEMBER 30, 1983¹

Vessel Type ²	Privately Owned		MARAD Owned		Total	
	Number Ships	Deadweight Tons (000)	Number Ships	Deadweight Tons (000)	Number Ships	Deadweight Tons (000)
Active Fleet:						
Combo Passenger/Cargo	5	43	4	32	9	75
General Cargo	65	904	6	53	71	957
Intermodal	123	2,632	0	0	123	2,632
Bulk Carriers	23	950	0	0	23	950
Tankers	232	12,918	2	21	234	12,939
Total Active Fleet	448	17,447	12³	106	460	17,553
Inactive Fleet:						
Combo Passenger/Cargo	2	15	37	254	39	269
General Cargo	26	320	194	2,159	220	2,479
Intermodal	22	474	10	155	32	629
Bulk Carriers	0	0	0	0	0	0
Tankers	55	3,544	13	263	68	3,807
Total Inactive Fleet	105	4,353	254	2,831	359	7,184
Total Active and Inactive:						
Combo Passenger/Cargo	7	58	41	286	48	344
General Cargo	91	1,224	200	2,212	291	3,436
Intermodal	145	3,106	10	155	155	3,261
Bulk Carriers	23	950	0	0	23	950
Tankers	287	16,462	15	284	302	16,746
Total American Flag	553	21,800	266⁴	2,937	819	24,737

¹ Vessels of 1,000 gross tons and over, excluding privately owned tugs, barges, etc.

² Bulk Carriers include Tug Barges; Tankers include Tanker Barges and Liquefied Natural Gas Carriers.

³ Includes 7 vessels in custody of other agencies.

⁴ Includes National Defense Reserve Fleet which consists of 241 ships, of which 12 are scrap candidates.

NOTE: Tonnage figures may not add due to rounding.

Subsidy of approximately \$4.9 million was paid to one liner company for voyages in the Great Lakes trade in calendar year 1983.

ODS accruals and expenditures from January 1, 1937, through September 30, 1983, are summarized in Table 13. Accruals and outlays by shipping lines for the same period are shown in Table 14.

No new ODS contracts were awarded during FY 1983.

At the end of this reporting period, 24 operators (8 liner and 16 bulk) held 26 ODS contracts with MARAD and operated 164 subsidized vessels. (See Table 15.)

Section 614

Under section 614 of the Merchant Marine Act, 1936, as amended, a company receiving ODS funds may 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.

During FY 1983 five companies operated under suspended ODS agreements:

- Equity Carriers I, Inc., suspended its ODS contract on the PRIDE OF TEXAS effective September 21, 1981.
- Asco-Falcon II Shipping Co. suspended its ODS agreement on the STAR OF TEXAS effective December 4, 1981.
- Aries Marine Shipping Co. suspended its ODS agreement on the ULTRAMAR effective April 10, 1982, and on the ULTRASEA effective December 10, 1982.

- Equity Carriers III, Inc., suspended its ODS on the SPIRIT OF TEXAS effective December 29, 1982.
- Moore-McCormack Bulk Transport, Inc., suspended its ODS agreement on the MORMACSTAR effective May 17, 1983.

Corporate/Service Changes

During FY 1983, the Maritime Administration approved ownership changes affecting four subsidized liner companies and the transfer of

certain subsidized service rights from one operator to another.

Crowley Maritime International, a wholly owned subsidiary of Crowley Maritime Corp., was given permission to acquire all outstanding stock of Delta Steamship Lines, Inc., from Holiday Inns, Inc.

Table 10: EMPLOYMENT OF U.S.-FLAG OCEANGOING FLEET—SEPTEMBER 30, 1983¹

Status and Area of Employment	Vessel Type							
	Total		Combination Pass./Cargo		Freighters		Tankers ²	
	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)
Grand Total	819	24,737	48	344	469	7,647	302	16,746
Active Vessels	460	17,553	9	75	217	4,539	234	12,939
Foreign Trade	160	4,487	3	28	169	3,130	26	1,329
Nearby Foreign ³	13	442	0	0	4	74	9	368
Great Lakes-Seaway Foreign	4	80	0	0	4	80	0	0
Overseas Foreign	143	3,965	3	28	123	2,976	17	961
Foreign to Foreign	24	1,213	0	0	7	123	17	1,090
Domestic Trade	204	10,335	2	15	38	645	164	9,675
Coastwise	80	2,617	0	0	8	161	72	2,456
Intercoastal	65	5,072	0	0	2	42	63	5,030
Noncontiguous	59	2,646	2	15	28	442	29	2,189
Other U.S. Agency Operations	72	1,518	4	32	41	641	27	845
MSC Charter	60	1,412	0	0	35	588	25	824
Bareboat Charter & Other Custody	12	106	4	32	6	53	2	21
Inactive Vessels	359	7,184	39	269	252	3,108	68	3,807
Temporarily Inactive	12	410	0	0	9	232	3	178
Laid-Up (Privately Owned)	92	3,927	2	15	38	546	52	3,366
Laid-Up (MARAD-Owned)								
Pending Disposition ⁴	14	202	2	19	9	119	3	64
National Defense Reserve Fleet ⁵	241	2,645	35	235	196	2,211	10	199

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

² Includes 19 dry-bulk vessels.

³ Nearby foreign trade includes Canada, Mexico, Central America, West Indies, and North Coast of South America.

⁴ Other than vessels in the National Defense Reserve Fleet.

⁵ Includes 1 vessel of Pacific Far East Line, Inc.

Table 11: MAJOR MERCHANT FLEETS OF THE WORLD—JANUARY 1, 1983

Country	No. of Ships ¹	Rank by No. of Ships ²	Deadweight Tons	Rank by Deadweight Tonnage
Liberia	2,145	4	140,293,000	1
Greece	2,604	2	68,868,000	2
Japan	1,775	5	63,665,000	3
Panama	3,141	1	56,288,000	4
Norway	577	10	36,237,000	5
United Kingdom	816	6	32,067,000	6
U.S.S.R.	2,482	3	22,457,000	7
United States (Privately Owned)	573	11	21,647,000	8
France	318	19	17,422,000	9
Italy	605	8	15,747,000	10
Singapore	588	9	12,042,000	11
Spain	517	12	11,924,000	12
China (People's Republic of)	811	7	11,798,000	13
Germany (Federal Republic of)	439	15	10,381,000	14
India	385	16	9,826,000	15
All Others ³	7,726		140,413,000	
Total	25,482		671,093,000	

¹ Ongoing merchant ships of 1,000 gross tons and over.

² By number of ships, Korea (Republic of) ranked 13th with 474 vessels aggregating 9,552,000 dwt., and Netherlands ranked 14th with 454 vessels aggregating 7,645,000 dwt.

³ Includes 259 United States Government-owned ships of 2,756,000 dwt.

MARAD approved the sale of Lykes Bros. Steamship Co., Inc., by LTV Corp. to Interocean Steamship Corp.

McLean Securities, Inc. (which later became McLean Industries, Inc.), parent of United States Lines, Inc. (USL), was granted permission to acquire all capital shares of Moore McCormack Lines, Inc.

MARAD approved the transfer by Natomas Co. to the newly formed American President Companies, Ltd., of all capital stock of Natomas Transportation, the sole shareholder of American President Lines, Ltd.

In addition, MARAD approved the assignment of ODS rights held by Farrell Lines, Inc., on Trade Route 16 (U.S. Atlantic and Gulf/Australia and New Zealand) to USL and USL's acquisition of four Farrell containerships previously assigned to that route.

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.

The Maritime Subsidy Board establishes tentative wage subsidy rates within 90 days of the start of each fiscal year for which such rates shall be effective. The tentative FY 1984 rates for all subsidized vessels were completed in July 1983.

MARAD substantially completed all final 1981 subsidy rates applicable to liner vessels, passenger

vessels in liner service, and bulk vessels.

In addition to the wage category, ODS rates are calculated for subsistence (for passenger vessels only), maintenance and repairs, hull and machinery insurance, and protection and indemnity insurance for both premiums and deductibles.

Soviet Grain ODS

All ODS contracts for the carriage of bulk commodities to the Soviet Union were cancelled with the termination of the 6-year maritime agreement between the United States and the Soviet Union at the end of calendar year 1981.

During the program, operators accrued \$147.1 million in ODS for 327 subsidized voyages. The final ODS

payments for this program were made during fiscal year 1983.

Cargo Carried Under the China Maritime Agreement

The U.S. maritime agreement with the People's Republic of China, which expired December 17, 1983, contained provisions for bulk cargo

sharing subject to: (a) mutually acceptable rates and (b) fair and reasonable rates, terms, and conditions of carriage. In the last two years of the agreement, U.S.-flag vessels carried only 34,983 tons of grain to China, about .3 percent of the total exported. Chinese-flag vessels carried 36.6 percent (2.6 million tons) in FY 1982 and 32.5 percent (1.2 million tons) in FY 1983. Third-flag vessels, many owned by the China Ocean Shipping Company, carried the remainder.

Passenger/Cruise Service

As of September 30, 1983, U.S.-flag oceangoing passenger service was provided by the cruise liners INDEPENDENCE and CONSTITUTION operated by American Hawaii Cruises, Inc., and by four passenger/cargo vessels operated by Delta Steamship Lines, Inc. The Delta ships —SSs SANTA MAGDA-

Table 12: U.S. OCEANBORNE FOREIGN TRADE/COMMERCIAL CARGO CARRIED
Tonnage (Millions)

Calendar Year	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Total Tons	631.6	628.9	615.6	698.8	775.3	775.6	823.1	772.2	760.0	675.5
U.S.-Flag Tons	39.9	40.9	31.4	33.8	34.8	32.1	35.0	28.2	34.2	31.1
U.S. Percent of Total	6.3	6.5	5.1	4.8	4.5	4.1	4.2	3.7	4.5	4.6
Liner Total Tons	51.3	51.4	44.3	49.8	47.8	56.5	57.0	59.3	60.0	54.5
Liner U.S.-Flag Tons	13.2	15.3	13.6	15.4	14.4	16.0	15.7	16.2	16.5	14.3
Liner U.S. Percent	25.8	29.8	30.7	30.9	30.2	28.3	27.5	27.3	27.6	26.2
Non-Liner Total Tons	281.9	282.7	275.3	289.6	289.0	308.8	342.7	356.7	365.6	335.8
Non-Liner U.S.-Flag Tons	4.5	5.0	3.8	4.9	5.7	4.5	3.6	4.1	4.5	3.3
Non-Liner U.S. Percent	1.6	1.8	1.4	1.7	2.0	1.5	1.0	1.2	1.2	1.0
Tanker Total Tons	298.4	294.8	296.0	359.4	438.6	410.3	423.4	356.3	334.4	285.3
Tanker U.S.-Flag Tons	22.2	20.5	14.0	13.6	14.6	11.6	15.7	7.9	13.2	13.5
Tanker U.S. Percent	7.4	7.0	4.7	3.8	3.3	2.8	3.7	2.2	3.9	4.7
Value (\$ Billions)										
Total Value	84.0	124.2	127.5	148.4	171.2	195.8	242.1	294.3	315.4	281.2
U.S.-Flag Value	15.9	22.0	22.4	26.4	28.0	30.7	35.7	42.3	47.0	43.5
U.S. Percent of Total	18.9	17.7	17.5	17.8	16.4	15.7	14.7	14.4	14.9	15.5
Liner Total Value	49.6	63.4	64.0	75.8	82.3	99.9	117.6	136.9	148.0	140.6
Liner U.S.-Flag Value	14.4	19.4	20.0	23.9	25.2	28.6	32.5	39.2	41.7	39.1
Liner U.S. Percent	29.1	30.6	31.2	31.6	30.7	28.6	27.6	28.7	28.1	27.8
Non-Liner Total Value	25.2	34.7	36.6	38.2	42.7	52.5	62.0	74.1	81.0	72.0
Non-Liner U.S.-Flag Value	.7	.8	1.0	1.1	1.2	1.0	1.1	1.3	1.9	1.2
Non-Liner U.S. Percent	2.5	2.3	2.8	2.8	2.8	1.8	1.7	1.8	2.3	1.7
Tanker Total Value	9.2	26.0	26.9	34.4	46.2	43.4	62.5	83.3	86.4	68.5
Tanker U.S.-Flag Value	.8	1.8	1.4	1.4	1.6	1.1	2.1	1.8	3.4	3.2
Tanker U.S. Percent	9.1	6.9	5.1	4.2	3.5	2.7	3.4	2.1	3.9	4.7

Note: Table includes Government-sponsored cargo; excludes Department of Defense and U.S./Canada transatlantic cargoes.

Table 13: ODS ACCRUALS AND OUTLAYS—JANUARY 1, 1937, TO SEPTEMBER 30, 1983

Calendar Year of Operation	Accruals			Outlays		Net Accrual Liability
	Subsidies	Recapture	Subsidy Accrual	In FY 1983	Total Amount of Net Accrual 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-	219,256,913	40,515
1975	260,676,152	-0-	260,676,152	-0-	260,522,404	153,748
1976	274,837,572	-0-	274,837,572	1,040,897	275,267,465	-429,893
1977	294,586,089	-0-	294,586,089	2,203,136	294,779,691	-193,602
1978	285,075,424	-0-	285,075,424	1,025,349	284,431,732	643,692
1979	279,347,879	-0-	279,347,897	4,745,753	278,312,598	1,035,299
1980	385,399,792	-0-	385,399,792	6,989,078	380,771,302	4,628,490
1981	350,299,767	-0-	350,299,767	12,724,039	343,621,092	6,678,675
1982	364,833,552	-0-	364,833,552	100,873,787	346,637,961	18,195,591
1983	253,600,439	-0-	253,660,439	236,052,954	236,052,954	17,547,485
Total Regular ODS	\$7,067,113,375	\$238,186,435	\$6,878,926,940	\$365,654,993	\$6,780,626,940	\$48,300,000
Soviet Grain Programs	\$147,132,626	-0-	\$147,132,626	\$2,539,338	\$147,132,626	-0-
Total ODS	\$7,214,246,001	\$238,186,435	\$6,976,059,566	\$368,194,331	\$6,927,759,566	\$48,300,000

LENA, SANTA MARIA, SANTA MARIANA, and SANTA MERCEDES—could accommodate up to 100 passengers per voyage.

During the year, American Flagships, Inc., filed an application for a Title XI guarantee to aid in financing the construction of two 750-passenger oceangoing luxury cruise ships.

On the inland waterways, two traditionally styled steamboats operated by Delta Queen Steamboat Co. provided a variety of cruises on the Mississippi and Ohio Rivers.

Three operators offered local coastwise service with U.S.-flag vessels carrying 100 passengers or fewer: American Cruise Lines along the Atlantic Coast, Coastal Cruise Lines on the Atlantic Coast and Caribbean, and Exploration Cruise Lines on the U.S. and Canadian Pacific Coast. During the year MARAD approved a Title XI application from Coastal Cruise Lines.

Also in FY 1983, the Congress enacted legislation providing tax deductions for persons attending conventions on U.S.-flag vessels

(section 543 of the Surface Transportation Act).

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

**Table 14: OPERATING-DIFFERENTIAL SUBSIDY ACCRUALS AND OUTLAYS BY LINES—
JANUARY 1, 1937, TO SEPTEMBER 30, 1983**

Lines	Accruals			ODS Paid	Net Accrued Liability
	ODS	Recapture	Net Accrual		
Aeron Marine Shipping ¹	\$ 21,309,125	\$ -0-	\$ 21,309,125	\$ 21,465,013	\$ -155,888
American Banner Lines ²	2,626,512	-0-	2,626,512	2,626,512	-0-
American Diamond Lines ²	185,802	28,492	157,310	157,310	-0-
American Export Lines ³	693,821,868	10,700,587	683,121,281	683,121,281	-0-
American Mail Lines ⁴	158,240,739	7,424,902	150,815,837	150,815,837	-0-
American President Lines ⁴	909,074,654	17,676,493	891,398,161	889,223,334	2,174,827
American Shipping ¹	10,552,327	-0-	10,552,327	10,715,638	-163,311
American Steamship	76,462	-0-	76,462	76,462	-0-
Aquarius Marine Co. ¹	13,854,590	-0-	13,854,590	14,887,531	-1,032,941
Aries Marine Shipping	23,725,894	-0-	23,725,894	24,706,147	-980,253
Atlantic & Caribbean S/N ²	63,209	45,496	17,713	17,713	-0-
Atlas Marine Co.	13,508,788	-0-	13,508,788	13,487,655	21,133
Baltimore Steamship ²	416,269	-0-	416,269	416,269	-0-
Bloomfield Steamship ²	15,588,085	2,613,688	12,974,397	12,974,397	-0-
Chestnut Shipping Co.	26,661,222	-0-	26,661,222	25,595,887	1,065,335
Delta Steamship Lines	525,191,489	8,185,313	517,006,176	504,687,635	12,318,541
Ecological Shipping Co.	4,479,153	-0-	4,479,153	4,479,153	-0-
Farrell Lines	519,076,654	1,855,375	517,221,279	510,482,641	6,738,638
Prudential Lines ⁵	607,502,016	24,223,564	583,278,452	579,032,608	4,245,844
Gulf & South American Steamships ⁶	34,471,780	5,226,214	29,245,566	29,245,566	-0-
Lykes Bros. Steamship	1,143,915,377	52,050,598	1,091,864,779	1,082,916,400	8,948,379
Margate Shipping	48,083,686	-0-	48,083,686	46,191,672	1,892,014
Moore McCormack Bulk Transport	37,206,402	-0-	37,206,402	36,419,333	787,069
Moore McCormack Lines	643,533,577	17,762,445	625,771,132	622,128,785	3,642,347
N.Y. & Cuba Mail Steamship	8,090,108	1,207,331	6,882,777	6,882,777	-0-
Oceanic Steamship ⁷	113,947,681	1,171,756	112,775,925	112,775,925	-0-
Ocean Carriers ¹	16,961,115	-0-	16,961,115	18,589,867	-1,628,752
Pacific Argentina Brazil Line ²	7,963,936	270,701	7,693,235	7,693,235	-0-
Pacific Far East Line ⁸	283,693,959	23,479,204	260,214,755	260,214,755	-0-
Pacific Shipping Inc.	13,291,462	-0-	13,291,462	11,966,887	1,324,575
Prudential Steamship ²	26,352,954	1,680,796	24,672,158	24,672,158	-0-
Sea Shipping ²	25,819,800	2,429,102	23,390,698	23,390,698	-0-
States Steamship ⁹	231,980,097	5,110,997	228,685,724	226,869,100	-0-
United States Lines ¹⁰	649,900,232	54,958,689	594,941,543	592,399,624	2,341,919
Waterman Steamship	213,486,258	-0-	213,486,258	208,697,151	4,085,528
Worth Oil Transport	13,734,923	-0-	13,734,923	12,477,220	1,257,703
South Atlantic Steamship ²	96,374	84,692	11,682	11,682	-0-
Seabulk Transmarine I & II, Inc.	7,999,294	-0-	7,999,294	7,485,580	513,714
Equity	629,504	-0-	629,504	629,504	-0-
Total Regular ODS	\$7,067,113,375	\$238,186,435	\$6,828,926,940	\$6,780,626,940	\$48,300,000
Soviet Grain Programs ¹¹	147,132,626		147,132,626	147,132,626	-0-
Total ODS	\$7,214,246,001	\$238,186,435	\$6,976,059,566	\$6,927,759,566	\$48,300,000

¹ Accruals to be adjusted in FY 1984.

² No longer subsidized or combined with other subsidized lines.

³ AEL was acquired by Farrell Lines, March 29, 1978.

⁴ APL merged its operations with AML's, October 10, 1973.

⁵ Changed from Prudential-Grace Lines, Inc., August 1, 1974.

⁶ Purchased by Lykes Bros. Steamship Co., Inc.

⁷ Purchased by PFEL.

⁸ Went into receivership August 2, 1978.

⁹ Went into receivership December 4, 1978.

¹⁰ Ceased subsidy November 1970; subsidy resumed January 1981.

¹¹ Terminated December 31, 1978.

Table 15: ODS CONTRACTS IN FORCE—SEPTEMBER 30, 1983

A. Liner Trades:

Operator and Contract No.	Contract Duration	Number of Subsidized Ships	Service (Trade Route/Area)	Annual Sailings	
				Minimum	Maximum
American President Lines, Ltd. MA/MSB-417	1-01-78 to 12-31-97	21	Transpacific Services: ¹	72	108
			California/Far East Line A (TR 29)		
			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	—
Delta Steamship Lines, Inc. MA/MSB-353	1-01-76 to 12-31-95	8	U.S. Gulf/East Coast South America (TR 20)	26	Overall maximum not to exceed 77
			U.S. Gulf/West Africa (TR 14-2)	24	
Delta Steamship Lines, Inc. MA/MSB-425	6-17-78 to 12-31-97	15	U.S. Atlantic/West Coast South America (TR 2)	48	62
			U.S. Atlantic/Caribbean (TR 4)	22	33
			U.S. Pacific/Caribbean, East and West Coasts South America, Mexico, Central America (TRs 23, 24, 25)	25	42
Farrell Lines, Inc. MA/MSB-352	1-01-76 to 12-31-95	3	U.S. Atlantic/West Africa (TR 14-1)	20	38
Farrell Lines, Inc. MA/MSB-482	1-01-81 to 12-31-2000	3	U.S. Atlantic/Mediterranean Service (TRs 10, 13) ⁵	44	66
Lykes Bros. Steamship Co., Inc. MA/MSB-451	1-01-79 to 12-31-98	44	U.S. Gulf/U.K.-Continent (TR 21) ⁶	36	60
			U.S. Gulf & S. Atlantic/Mediterranean (TR 13)	42	48
			U.S. Gulf/Far East (TR 22) ^{7, 8}	36	60
			U.S. Gulf/South & East Africa (TR 15-B) ⁷	18	24
			U.S. Gulf/West Coast South America (TR 31) ⁹	24	48
			Great Lakes/Mediterranean-India (Trade Area 4)	3	10
U.S. Pacific/Far East, North (TR 29) ¹⁰	20	Overall maximum not to exceed 330			
U.S. Pacific/Far East, South (TR17/29) ¹⁰	20				
Prudential Lines, Inc. MA/MSB-421	1-01-78 to 12-31-97	3	U.S. North Atlantic/Mediterranean (TR 10)	24	36
United States Lines, Inc. MA/MSB-483	6-29-82 to 6-29-87	8	U.S. North Atlantic/Western Europe (TR 5, 7, 8, 9/11)	52	105
		11	U.S. Atlantic and Pacific/Far East (TR 12/29) ¹¹	26	53
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,) ¹²	16	21

(Continued on page 18)

Table 15: (Continued)

Operator and Contract No.	Contract Duration	Number of Subsidized Ships	Service (Trade Route/Area)	Annual Sailings	
				Minimum	Maximum
United States Lines (SA), Inc. (formerly Moore McCormack Lines, Inc.) MA/MSB-338	1-01-75 to 12-31-94	13	U.S. Atlantic/East Coast South America (TR 1)	40	70
			U.S. Atlantic/South & East Africa (TR 15-A)	22	36
Waterman Steamship Corp. MA/MSB-115	6-04-71 to 6-03-91	6	U.S. Atlantic-Gulf/India, Persian Gulf & Red Sea, Indonesia, Malaysia, Singapore, Brunei (TRs 18, 17) ¹³	30	40
Waterman Steamship Corp. MA/MSB-378	10-26-76 to 10-25-96	2	U.S. Atlantic-Gulf/Far East, Indonesia, Malaysia, Singapore, Brunei (TRs 12, 22, 17) ¹³	8	12
Waterman Steamship Corp. MA/MSB-450	11-21-78 to 11-20-98	2	U.S. Gulf/Western Europe (TR 21)	24	35

Total Liner Trades**139**

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. Subsidy for all such voyages is paid at dual service rates.

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 owns two LASH vessels, the AUSTRAL LIGHTNING and AUSTRAL RAINBOW, which are on charter to the Military Sealift Command.

⁶ Principally, Lykes operates Sea Barge Carriers on TR-21. Each sailing of a Sea Barge Carrier counts as two sailings toward the contractual minimum/maximum of 36/60; thus, actual sailing min/max for Sea Barge Carriers is 18/30.

⁷ Lykes has the option to perform additional sailings on TRs 22 and 15-B over maximum sailings if the minimum sailings are made on all other services: On TR 22, nine additional sailings; on TR 15-B, five additional sailings. The overall maximum must not exceed 330 annual sailings.

⁸ Subject to stipulation that a minimum of 12 and a maximum of 30 sailings per annum shall include ports in the following described area: Indonesia and Malaysia (including Singapore).

⁹ 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 Columbia.

¹⁰ Except on TR 29 and TR 17/29, one sailing by a C7-S-95a in any service of the operator shall count as 1 ¼ sailings against the contractually required minimum and maximum in such services. Dual service privileges provide that sailings made by vessels calling at both U.S. Gulf and U.S. Pacific ports count toward the minimum and maximum sailings on TR 22 and on TR 12/29.

¹¹ No more than 8 vessels may be operated with subsidy on TR 5-7-8-9/11 at any one time and no more than 11 vessels may be operated with subsidy on TR 12/29 at any one time, except when the exercise of interchange and transfer privilege creates a temporary overlap of subsidized voyages. One sailing by a C8-S-85c/d vessel on TR 5-7-8-9/11 shall count as two sailings against the contractually required minimum and maximum sailings on such service and each such vessel operated with subsidy on TR 5-7-8-9/11 shall count as two vessels towards the limitation of eight vessels to be operated at any one time on the trade route.

¹² For one year after execution of contract addendum adding the TR 16 service, USL may operate on TR 16 only non-subsidized; subsidized service with no more than 4 vessels may commence at any time after one year after execution of said addendum.

¹³ Waterman is to provide a minimum of 12 and a maximum of 18 sailings annually to the Indonesia, Malaysia, Singapore, Brunei (TR 17) area under Contract Nos. MA/MSB-115 and MA/MSB-378.

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.

During fiscal year 1983, MARAD waived provisions of section 804 to allow a member of the Board of

Directors of the Aluminum Company of America, parent of Alcoa Steamship Co., Inc., to serve on the Board of McLean Industries, Inc., parent of United States Lines, Inc., (USL) and Moore McCormack Lines, Inc. (Mormac Lines).

The Agency also granted a waiver to Moore McCormack Bulk

Transport, Inc., with regard to any section 804 waiver held or to be held by USL and/or Mormac Lines until January 16, 1988, subject to the occurrence of certain events. It also granted a waiver to Mormac Lines for USL's foreign-flag operations.

Table 15: (Continued)**B. Bulk Trades:**

Operator and Contract No.	ODS Agreements		Number of Subsidized Ships 9/30/83	Service	Annual Sailings
	Contract Effective Date	Contract Termination Date			Minimum No. of Days
Aeron Marine Shipping Co. MA/MSB-166	10-10-74	10-09-94	1	Worldwide Bulk Trade	335
American Shipping, Inc. MA/MSB-272	4-14-76	4-13-96	1	Worldwide Bulk Trade	335
Aquarius Marine Co. MA/MSB-309	10-15-75	10-14-95	1	Worldwide Bulk Trade	335
Aries Marine Shipping Co. MA/MSB-129	8-09-73	8-08-93	2	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
Chestnut Shipping Co. MA/MSB-299	12-01-76	11-30-96	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	12-09-93	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 Carriers, Inc. MA/MSB-167	4-03-76	4-02-96	4	Worldwide Bulk Trade	335
Pacific Shipping, Inc. MA/MSB-273	7-24-76	7-23-96	1	Worldwide Bulk Trade	335
Seabulk Transmarine I MA/MSB-440	3-27-81	3-26-2001	1	Worldwide Bulk Trade	335
Seabulk Transmarine III MA/MSB-442	9-20-81	9-19-2001	1	Worldwide Bulk Trade	335
Worth Oil Transport Co. MA/MSB-271	2-20-76	2-19-76	1	Worldwide Bulk Trade	335
Total Bulk Trades			25		

Foreign Transfers

During FY 1983, MARAD approved the transfer of 41 ships of 1,000 gross tons and over to foreign firms. Twenty-four were sold for scrapping abroad. (See Table 16.)

Permission also was granted for the foreign transfer of 300 vessels of less than 1,000 gross tons during the fiscal year. These included 167 commercial and 133 pleasure craft.

In addition, MARAD approved six contracts of affreightment and 40 U.S.-owned ships of over 1,000 gross tons and 99 smaller vessels for charter to aliens.

Pursuant to Public Law 89-346 and 46 CFR 221.21-221.30, approval was granted during the year for 52

banks to be retained on the Roster of Approved Trustees. Five new banks were approved as trustees and two were removed from the roster.

Seventy sale violations involving privately owned ships were reported during the fiscal year, and 59 violations were mitigated or settled.

User charges for filing applications for foreign transfers and similar actions totaled \$133,317 in this reporting period. This total included \$2,860 in fees filed pursuant to MARAD contracts.

MARAD's approvals of 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 221 Appendix). At

the end of the reporting period, 68 vessels were subject to these terms and conditions, which run with the titles to the ships and remain in effect for their remaining economic lives.

Environmental Protection

The Maritime Administration conducts programs and participates in national and international efforts to preserve and improve the marine environment and to encourage more efficient use of energy.

MARAD seeks to promote and maintain marine pollution control through its own programs and by assisting other organizations in the development of ship design, construction, equipment, and operational standards.

Table 16: FOREIGN TRANSFER APPROVALS—FY 1983

	Pursuant to Section 9 (U.S. owned and U.S. documented)		
	No. of Vessels	Gross Tons	Average Age
Tankers	18	277,198	33.5
Cargo	8	84,583	36.25
Cargo/Passenger	1	14,812	30.0
Miscellaneous	13	36,020	16.44
Total	40	412,613	16.44
Recapitulation By Nationality:	Number	Gross Tons	
Bermudian	2	12,104	
Brazilian	1	3,626	
Canadian	2	16,975	
People's Republic of China	1	14,812	
Taiwanese	1	1,120	
St. Lucia	2	2,050	
Total	9	50,687	
Sales to Aliens Only	1	10,473	
Sales to U.S. Trustee for Alien Benefit (Financial)	4	11,304	
Sales to Domestic Alien-Controlled Corporation	3	5,816	
Sales to Aliens for Scrapping	23	334,333	
Total	31	361,926	
GRAND TOTAL	40	412,613	

The Agency's pollution control study activities address vessel discharges of oil, hazardous substances, sewage, and garbage as well as vessel stack and volatile vapor emissions.

Incinerator Ship Program

During FY 1983, MARAD continued to co-chair the Interagency Review Board for the Chemical Waste Incinerator Ship Program with the Environmental Protection Agency and the Coast Guard. The review board was established in 1980 to monitor and coordinate Federal Government activities related to the development of U.S.-flag incinerator ships.

In April 1982, the Maritime Administrator approved an application for a Federal Ship Financing Guarantee to aid in financing the construction of the first two U.S.-flag incinerator ships. They were under construction during this reporting period at Tacoma Boatbuilding Co., Tacoma, Washington, for certification by the Coast Guard and classification by the American Bureau of Shipping.

In December 1982, the President signed Public Law 97-389 which, among other things, defines ocean incineration of hazardous wastes in the United States as domestic transportation of cargoes, thus subject to the U.S.-flag requirements of the Jones Act. Existing foreign-flag incinerator ships owned by a U.S. company were granted "grandfather" protection contingent upon a complete safety inspection by the Coast Guard.

The development of incinerator ship technology is part of a broadly based Industrial Plant Vessel Program to combine industrial and

maritime technologies to solve significant waste transportation, treatment, conversion, and destruction problems.

Asbestos Control

During FY 1983, MARAD began implementation of its *Action Plan for the Control of Asbestos Exposures and Uses in MARAD Programs* which was issued at the close of FY 1982. Agency policy is to prevent or stringently limit personnel exposure to airborne asbestos fibers.

Among its many requirements, the action plan mandates elimination of asbestos materials from MARAD programs, repair or replacement of asbestos materials already installed, modified work procedures and employee training, and medical surveillance of selected MARAD employees.

Principal activities under the plan during FY 1983 included:

- Contracting for development of a training course on precautions against asbestos exposure in the workplace. The course is to be tailored to the shipboard maintenance and repair tasks likely to be performed by MARAD employees in the National Defense Reserve Fleet sites. It will be modified for use at the maritime academies.
- Continuing extensive repairs and replacement of asbestos materials, such as piping insulation, now in place in MARAD ships and facilities.
- Establishing a Medical Surveillance Program for all MARAD employees whose present or previous work may have caused exposure to airborne asbestos fibers.

- Performing extensive supplemental asbestos air monitoring at Reserve Fleet sites under varying conditions. All results reported in FY 1983 showed airborne fiber levels at or below conservative detection norms, indicating that all measured facilities had little or no asbestos hazard.

Regulations, Legislation, and Treaties

MARAD continued to analyze national legislation and regulations and international treaties and standards concerning marine pollution prevention and maritime safety. Of special interest were proposed MARAD/U.S. Coast Guard draft legislation and supporting studies to amend the Clean Air Act to provide for Federal regulation of air pollutant emissions from commercial vessels; several bills dealing with oil pollution liability and compensation, including adoption of the Civil Liability Convention and the Fund Convention; proposed legislation to amend the Marine Protection Research and Sanctuaries Act; and proposed Coast Guard regulations, including environmental and regulatory analyses, to implement the Port and Tanker Safety Act (PTSA) 1983 and 1986 requirements for 20,000 to 70,000 dwt. tankers.

During FY 1983, MARAD continued to participate in activities of the International Maritime Organization. Of particular importance with respect to pollution control were the activities of the National Committee on Marine Pollution, National Committee on Ocean Dumping, the Subcommittee on Safety of Life at Sea, and the Working Group on Bulk Chemicals.

Domestic Operations

The domestic segment of the American merchant marine includes the Great Lakes, inland waterways, and noncontiguous oceans, inter-coastal, and coastwise trades. U.S.-flag vessels annually transport about one billion tons of domestic cargo.

Great Lakes

The number of vessels in the U.S. Great Lakes fleet remained unchanged at 143, aggregating 3.1 million deadweight tons (dwt.) in fiscal year 1983. (See Table 17.)

Shipments of iron ore, coal, and grain, the major commodities of the

region, showed a 6 percent increase over FY 1982, but still were 19 percent below the FY 1981 tonnage.

The overall economic downturn which began in fiscal year 1980 had a severe impact on the Great Lakes bulk trades. FY 1982 was one of the most depressed Great Lakes shipping seasons in a number of years.

The concept of ship-to-ship transfers of cargo using self-unloading systems advanced during this reporting period. Previously, such transfers were used to load or top off larger deep-draft ocean vessels with coal at St. Lawrence River ports. In FY 1983, a large Lake vessel used its self-unloading system to discharge iron ore to a smaller Lake craft so that the larger ship could complete the transit of the restricted draft Cuyahoga River in Cleveland.

A decline in consumer activity in the Great Lakes area affected the operations of the U.S. domestic fleet. At certain periods during the shipping season, more than 60 percent of the Great Lakes fleet was laid-up. Designed for domestic ship-

ping activity in the upper four lakes above the Welland Canal, these ships were restricted to the portion of the region most seriously affected by the economic downturn.

To provide technical assistance to shipbuilders in the region, MARAD developed a Shipyard Assistance Program designed to assist Great Lakes shipyards in identifying shipbuilding requirements of and contact points for Government agencies including the U.S. Coast Guard, Department of Defense, and National Oceanic and Atmospheric Administration.

Great Lakes-related research and development projects initiated during FY 1983 included:

- A design and feasibility study on the use of a low-pressure pneumatic cargo conveyance system to discharge, load or transfer a variety of cargoes in ports and aboard Great Lakes bulk vessels.
- A maritime navigation/communication program to identify the requirements for 24-hour, all-weather safe navigation on the Fourth Seacoast water network.

Table 17: U.S. GREAT LAKES FLEET—SEPTEMBER 30, 1983

	Vessels	Gross Registered Tons	Estimated Deadweight Tons
Total	143	1,701,067	3,099,378
Bulk Carriers	128	1,631,766	3,057,925
Active	50	769,197	1,499,040
Temporarily Inactive	21	297,792	557,425
Laid-Up Inactive	57	564,777	1,001,460
Tankers	6	29,326	41,453
Active	2	10,118	15,029
Temporarily Inactive	4	19,208	26,424
Others ¹	9	39,975	²
Active	2	6,958	
Temporarily Inactive	1	4,244	
Laid-Up Inactive (more than 12 months)	1	28,733	

¹ Includes railroad car ferries, auto ferries.

² Not available.

The most immediate problems are during spring and fall when the floating aids to navigation are not on station and inclement weather, such as fog and snow, can prevail.

- A computer-aided pilot training program using interactive video technologies to provide pilot training. The program allows the student to see and study the pilot waters as if aboard a vessel. (See also Chapter 6.)

Inland Waterways

During calendar year 1982, 571.1 million tons of traffic moved on the inland waterways of the United States, compared to 613.9 million tons in 1981. The cargo consisted primarily of bulk commodities and raw materials.

Over 328 million tons, or 57.5 percent of the total annual shipments, were energy products (including coal, coal products, crude petroleum, and petroleum products), some of which moved to power plants which could not otherwise have been supplied. Shipments of chemicals and allied products totaled approximately 32.7 million tons, or 5.7 percent of the total. Farm products for either domestic use or export markets provided 72.1 million tons or 12.6 percent of inland waterways cargoes.

As a result of economic conditions, between 25 and 30 percent of the river and coastal waterways barge fleet was inactive during FY 1983. Near the end of the fiscal year, however, there were signs of an economic upturn. Grain exports increased as a result of sales to the U.S.S.R. and the People's Republic of China.

MARAD initiated three cost-shared studies for the inland waterway sector during the year:

- Vessel Performance System, a project to develop a fuel management program for towboats;
- Operations Planning and Vessel Performance Management, to provide for the best possible link

between actual vessel operations and shoreside management planning and decision making; and

- Market Analysis and Strategic Planning System for the Inland Barge and Towing Industry, to provide market analysis and develop guidelines for strategic planning to meet the needs of the towing industry.

Domestic Ocean Trades

As of September 30, 1983, there were 204 large, self-propelled merchant vessels with a combined carrying capacity of 10.3 million dead-weight tons (dwt.) operating in the U.S. coastwise, intercoastal, and domestic offshore trades. This reflected a net decrease of 20 vessels and 1 million dwt. from FY 1982 totals.

Eight major new vessels were added to the domestic fleet during this reporting period:

- The 37,500-dwt. product tanker HUNTER ARMISTEAD;
- The 44,000-dwt. product tankers POTOMAC TRADER, DELAWARE TRADER, AND CHESAPEAKE TRADER;
- The 47,000-dwt. integrated tug/barge (ITB) product tankers BALTIMORE and NEW YORK;
- The 36,000-dwt. self-unloading coal-fired collier ENERGY INDEPENDENCE; and
- The 35,000-dwt. chemical carrier CHEMICAL PIONEER.

The net decrease in number of vessels and dwt. capacity was caused in part by the withdrawal of a number of smaller tankers from the transshipment of Alaskan crude oil through the Panama Canal following the opening of the Trans-Panama Pipeline in the fall of 1982.

In the Alaskan crude oil trade, during the fiscal year, 57 U.S.-flag and 6 foreign-flag tankers lifted 85.3 million long tons, an increase of 3.3 million tons, or 4 percent, over FY 1982 levels. The tankers made a total of 729 voyages from Valdez. The U.S.-flag vessels served ports in the Lower 48 States, Alaska, Hawaii,

and Puerto Armuelles in Panama (for transshipment). The foreign-flag ships served the U.S. Virgin Islands (a refining point) and St. Lucia (a storage point) via Cape Horn.

Because of temporary lack of domestic trade tankers available for service in the Alaskan oil trade, MARAD permitted very large crude carriers (VLCCs) built with the aid of construction-differential subsidy (CDS) to enter the domestic trade on a short-term basis. Federal regulations permit the transfer of a subsidized vessel to the Alaskan crude oil trade, under certain conditions, for a period of up to 6 months of any 12-month period. A pro rata payback to the Government of CDS for the time spent in domestic service must be made.

On October 3, 1982, the tanker PETERSBURG departed from Chiriqui Grande, Panama, with the first load of Alaskan crude oil from the Caribbean terminus of the Trans-Panama Pipeline. During the fiscal year, 52 U.S.-flag tankers lifted 33 million tons in the course of 443 voyages from that terminus to various U.S. Gulf and Atlantic ports.

The 80-mile crude oil pipeline across Panama displaced a number of "Panamax" tankers that previously transported Alaskan crude through the Panama Canal to the U.S. Gulf. The Trans-Panama Pipeline has a maximum flow rate of 800,000 barrels per day. In the last nine months of FY 1983, its average exceeded 670,000 barrels per day.

During the year, a total of 111 voyages were made from Puerto Armuelles, Panama, with transit through the Panama Canal to various Gulf and East Coast, Puerto Rican, and Virgin Islands destinations, carrying 4.4 million tons of oil.

The market share of U.S.-flag tankers in the Virgin Islands refined products trade during the year increased to 42 percent from 28 percent during FY 1982.

Charter Market Activity

In FY 1983, Alaskan crude oil trade and product shipments between U.S. Gulf and Atlantic Coast ports remained the two key trades for U.S.-flag tankers.

Tanker surpluses in the handy-sized range and consequent reductions in tanker revenues were moderated somewhat by Military Sealift Command charters to increase the Strategic Petroleum Reserve.

The Alaskan oil trade provided stable employment for most of the domestic tanker fleet. The Trans-Alaska Pipeline maintained a flow rate slightly in excess of 1.6 million barrels per day for ocean carriage to the "lower 48" states.

The upcoast petroleum market remained slow in FY 1983. This was

due to unusually low product demand, low levels of refinery utilization, more rapid than normal stock drawdowns and declining product prices. The Colonial pipeline (which runs from the U.S. Gulf up the East Coast terminating in New Jersey), chief competitor for the upcoast ocean trade, suffered no significant decline in throughput. The tankers suffered virtually all of the reduction in upcoast transportation demand. By the close of FY 1983, freight rates in the "spot" (single-voyage) market began to move slowly upward with the normal seasonal

increase of heating fuel movements to East Coast consumers, but the increase was not strong. Although the majority of the tankers involved in this trade were proprietary vessels either owned or long-termed chartered and operated by the oil companies, a significant single-voyage market continued for independent tanker operators. However, many of the older, less-efficient vessels have been laid up or scrapped, reflecting, at least in part, the continuing competitive influence of the pipelines in delivering petroleum to the Eastern seaboard.



Crowley Maritime Corp.'s 1983 summer sea-lift of oil industry cargo for Alaska included 26 loaded barges, 14 tugboats, an icebreaker barge, and a salvage vessel. The fleet, carrying 96,611 tons of cargo, is shown arriving at the Beaufort Sea.

Market Development

The Maritime Administration (MARAD) conducts comprehensive marketing programs designed to increase U.S.-flag participation in the Nation's oceanborne foreign trade.

Marketing Program

During fiscal year 1983, trade specialists assigned to nine offices throughout the country encouraged transportation policymakers of firms engaged in foreign commerce to use U.S.-flag vessels for the carriage of their oceanborne commerce.

Voluntary reports from carriers and shippers indicate that during the period at least \$13,180,100 in ocean freight revenues for U.S.-flag vessels resulted from these policy consultations. Over the last 10 years, more than \$200 million in additional revenue for American carriers has been reported as a result of this program.

Under MARAD's Market Lead System, 19 newsletters providing market intelligence from private and Government sources were distributed to U.S.-flag vessel operators during FY 1983. These reports identified 1,486 individual business opportunities having cargo potential for U.S.-flag carriers.

MARAD also sponsored and participated in seminars, meetings, and workshops which brought together U.S.-flag carriers, shippers, and other maritime interests to stimulate dialogue, foster greater utilization of U.S.-flag vessels, and encourage expansion of exports. Typical of this effort were forums sponsored by the Agency's Great Lakes Region in Minneapolis and Indianapolis. These forums provided an opportunity for shippers, carriers, ocean rate conference representatives, and govern-

ment executives to discuss current issues involving the use of U.S.-flag vessels.

Market Analysis and Planning

Through its Market Analysis and Planning Program, MARAD seeks to enhance the U.S.-flag fleet's competitiveness by increasing its revenue and profitability.

In the area of strategic market planning, a joint MARAD-industry project to develop *A Guide to Strategic Planning for the U.S. Liner Industry* was completed in FY 1983.

Another planning study assessed the feasibility of competitive U.S.-flag operation of combination ships capable of efficiently transporting both bulk and containerized cargoes. Such vessels would provide greater commercial flexibility and additional defense sealift capability.

During FY 1983 a study was begun to identify impediments to U.S.-flag participation in foreign-to-foreign trade. The ratification of the UNCTAD Code of Conduct for Liner Conferences with its cargo-sharing mechanisms was viewed as a threat which could create additional impediments to U.S.-flag cross-trading.

In this reporting period, the Agency also completed an analysis of U.S. imports and exports transhipped through Canada and issued monthly reports detailing each U.S.-flag carrier's competitive performance on each trade route served.

U.S.-P.R.C. Agreement

The Maritime Administration monitored liner cargo moving under the terms of the U.S.-People's Republic of China (P.R.C.) Maritime Agreement signed on September 17, 1980.

In calendar year 1982, U.S.-flag liner vessels carried 181,404 long

tons of cargo in the bilateral trade, while P.R.C. ships carried 335,349 long tons.

Based on a comparative-carriage, cargo-value formula, U.S.-flag vessels carried 16 percent by value for the year, while P.R.C.-flag vessels transported 28 percent, including cargoes carried by feeder vessels which were the sole province of the Chinese.

Without adjusting for feeder carriage operations, in calendar year 1982 U.S.-flag liner vessels carried 19 percent by value and P.R.C.-flag vessels carried 19 percent.

Preference Cargoes

MARAD is responsible for monitoring compliance with the cargo preference laws of the United States, and encouraging Federal agencies to maximize the use of U.S.-flag vessels.

The three principal cargo preference laws are:

- The Military Transportation Act of 1904, which requires all items procured for or owned by the military departments to be carried exclusively on U.S.-flag vessels;
- Public Resolution 17 of the 73rd Congress, which requires that all cargoes generated by the Export-Import Bank (Eximbank) be shipped on U.S.-flag vessels, unless a waiver is granted; and
- The Cargo Preference Act of 1954 (Public Law 83-664), which requires that at least half of all Government-generated cargo subject to the law be transported on privately owned, U.S.-flag commercial vessels.

To assure that the cargo preference laws are followed, MARAD monitors the shipping activities of 67 Federal Agencies. (See Table 18.) With the exception of the Eximbank, for which records are maintained over the life of a loan or guarantee, statistics for such programs are maintained on a calendar-year basis.

The Department of Defense (DOD) administers the Military

Transportation Act of 1904 and submits bill-of-lading data on DOD programs, including the Foreign Military Sales Credit Program and the Military Assistance Program (MAP), to MARAD.

An interagency liaison program and a computerized reporting

system enabled MARAD to process 24,197 bills of lading for 1982.

These documents covered civilian Agencies, some DOD contractor shipments, Eximbank, and most Foreign Military Sales (FMS) cargoes. The equivalent of 1,320 bills of lading covering MAP and

FMS also were processed, using DOD computer tapes.

Many Federal Agencies exceeded the 50 percent minimum U.S.-flag shipping requirement. Those which substantially exceeded the requirement were: Tennessee Valley Authority at 69 percent; Bureau of

Table 18: GOVERNMENT-SPONSORED CARGOES—CALENDAR YEAR 1982¹

Public Law 664 Cargoes:

Shipper	U.S.-Flag Revenue (\$1,000)	Total Metric Tons	U.S.-Flag Metric Tons	Percentage U.S.-Flag Tonnage
Action	3	4	3	75
Agency for International Development (AID):				
Loans and Grants	72,961	1,360,850	642,091	47 ²
P.L. 480—Title II	120,311	1,660,464	908,186	55
Board of International Broadcasting:	11	22	21	95 ²
Department of Agriculture:				
P.L. 480—Title I	172,387	3,915,939	2,036,581	52
Other USDA Programs	37	110	30	27 ³
Department of Commerce:				
Industry and Trade Administration	4	75	4	5 ²
Other Agencies	29	27	4	89
Department of Defense:				
Military Assistance Program	1,476	4,646	3,102	67
Foreign Military Sales Credit	34,893	105,107	74,232	71
Corps of Engineers—NEGEV	76	122	122	100
—OMAN	2,290	2,761	2,761	100
NAVFAC (Diego Garcia)	17,406	38,254	38,254	100
Department of Energy:				
Bonneville Power Administration	628	8,962	5,622	63 ²
Strategic Petroleum Reserve	88,389	8,512,596	6,479,658	76 ⁴
Department of Health and Human Services	7	15	10	67
Department of the Interior:				
Bureau of Reclamation	132	568	405	71
Other Agencies	10	21	11	52 ²
Department of Justice	38	27	23	85
National Aeronautics and Space Administration	87	128	98	77
Tennessee Valley Authority	323	1,774	1,299	69
Department of the Treasury:				
Chrysler Corporation	4,689	35,133	22,015	63
Other Agencies	4	5	5	100

(Continued on page 27)

Table 18: Continued

Public Law 664 Cargoes:

Shipper	U.S.-Flag Revenue (\$1,000)	Total Metric Tons	U.S.-Flag Metric Tons	Percentage U.S.-Flag Tonnage
Department of Transportation:				
Federal Highway Administration	0	6	0	0 ²
Urban Mass Transportation Administration	3,675	26,350	17,007	65
Other Agencies	9	8	8	100
U.S. Information Agency				
	293	673	491	73
Department of State:				
Foreign Building Office	796	3,489	3,489	100
Other Agencies (does not include AID)	6,559	16,648	14,101	85
Other Agencies				
	47	77	76	99

Public Resolution 17 Cargoes:

	Total Freight Revenue	U.S.-Flag Freight Revenue	Percentage U.S.-Flag
Export-Import Bank	\$57,302,847	\$40,499,161	70.6%

Agency for International Development (AID)/Israeli Agreement-Cash Transfer Program

U.S.-flag Revenue	Total Metric Tons	U.S.-Flag Metric Tons	Percentage U.S.-Flag Tonnage
\$50,808,603	\$1,847,913	\$921,061	50% ⁵

¹ Includes civilian agencies, Department of Defense Foreign Military Sales Program, Military Assistance Program, U.S. Army Corps of Engineers—NEGEV—OMAN, and the Naval Supply Facility—NAVFAC (Diego Garcia). Other Department of Defense cargoes not included.

² These agencies were below the required 50 percent participation due to the nonavailability of U.S.-flag service as provided in P.L. 664.

³ Cargoes of Agencies that generated less than 400 metric tons of cargo per year.

⁴ MARAD monitors the SPR program on the basis of long-ton miles (LTM). In CY 1982, this program provided a total of 42,769,189,515 LTM of which U.S.-flag carriers derived 26,035,039,757 LTM or 61 percent. These statistics exclude Alaskan North Slope (ANS) cargoes. (ANS U.S.-flag revenue amounted to \$9,752,960 and 2,955,675,625 LTM.)

⁵ In 1978 the United States converted its Commodity Import Program (CIP) under AID for Israel to a "Cash Transfer." A side letter has been given by Israel to the United States each year since the change in the assistance. In this letter Israel agrees to utilize U.S.-flag vessels for 50 percent of its bulk grain procurements. These statistics reflect Israel's compliance in this regard.

Reclamation, Department of the Interior at 71 percent; Bonneville Power Administration, Department of Energy, at 63 percent, and the Urban Mass Transportation Administration, Department of Transportation, at 65 percent.

From May 1980 through May 1983, a special cargo-preference requirement existed under an agreement between the Government and Chrysler Corp. relating to a Federal loan guarantee granted to the automobile manufacturer. Chrysler was required to utilize U.S.-flag

commercial vessels for at least 50 percent of its shipments during the term of the guarantee. In 1982, the company shipped 64 percent of its tonnage by U.S.-flag carriers.

Department of Defense

Both tonnage and revenues increased in 1982 under DOD's FMS program. Some countries which had U.S.-flag deficits at the end of 1981 agreed to move cash-purchased equipment on U.S.-flag vessels to eliminate these deficits. During 1982, U.S.-flag carriers received

\$34.9 million, or 72 percent of the FMS revenues, and 74,232 metric tons, or 71 percent of the total tonnage. The U.S.-flag revenue was 9 percent greater than the previous year, and the U.S.-flag tonnage 5 percent greater.

Strategic Petroleum Reserve

In 1977, the U.S. Government announced its intention to store 750 million barrels of crude oil in salt domes along the U.S. Gulf Coast as a Strategic Petroleum Reserve (SPR). At the end of calendar year

1982, 293.8 million barrels of crude oil had been stored at five SPR sites.

Under the Cargo Preference Act, the Department of Energy (DOE) transports at least 50 percent of the oil in U.S.-flag tankers. In 1977 MARAD and DOE agreed that long-ton miles would be used to determine compliance.

In calendar year 1982, U.S.-flag tankers carried foreign-procured cargo which resulted in 26 billion long ton/miles (61 percent), and their operators received \$88.4 million in revenue (84 percent). This represents an increase over calen-

dar year 1981 in which the carriage was 16.8 billion long ton/miles (25.4 percent) and revenue totaled \$75 million (58.9 percent). Also in 1982, U.S.-flag tankers carried Alaska North Slope crude oil for the SPR, which resulted in 3 billion long ton/miles and revenues of \$9.8 million.

Export-Import Bank

In the Export-Import Bank (Eximbank) program, total ocean freight revenues decreased from \$93.8 million in 1981 to \$57.3 million in 1982. During 1982, U.S.-flag operators earned \$40.5 million,

representing 70.6 percent of the total ocean freight revenues, compared with \$61.6 million, or 65.7 percent, during the previous year.

The downturn in the Eximbank program can be attributed to the worldwide recession and the reluctance of countries to make large purchases abroad or to enter into long range development projects. For several months in 1981, the Eximbank operated under a moratorium on new credit authorizations until new policies for allocating funds could be adopted. The decline in loan activity reduced the number of shipments made during 1982.



One of the two largest U.S.-flag bulk carriers, the GOLDEN PHOENIX (sistership of the JADE PHOENIX), is shown loading grain in Oregon for carriage to Egypt. Formerly a liquefied natural gas carrier, the 128,000-deadweight-ton, 931-foot vessel was christened in May, 1983.

Chapter 5

Port and Intermodal Development

During fiscal year 1983, the Maritime Administration (MARAD) provided research and technical port planning assistance to State and local port authorities and private industry. The Agency continued cooperative efforts with port and terminal operators to demonstrate and implement a prototype container terminal automated management system, published a study of the U.S. stevedoring and marine terminal industry, and updated a statistical report on minibridge cargo movements.

Port and Waterway Development

MARAD supported efforts to reduce constraints on dredging and participated in a study of waterway user charges.

The Agency also participated in Government-industry efforts to promote U.S. coal exports and contributed to the assessment of existing and potential U.S. port capabilities. Included were an analysis of coal-handling systems, export coal transport movements, and the effects of world coal demands on U.S. ports.

Technical Port Assistance

During FY 1983, MARAD developed several analytical research tools and techniques for improving planning, productivity, and the general efficiency of port management and terminal operations.

The Agency completed a regional port economic impact model for U.S. ports. A national port industry seminar and workshop was held to demonstrate the model and its use.

In its program to provide marketing assistance to U.S. ports, MARAD focused on analytical tools individual ports could use to formulate or refine marketing strategies.

The Agency's Great Lakes Region Office conducted a Great Lakes National Cargo Workshop in Chicago in February 1983 to examine Government cargo opportunities for ports in the region. Representatives of the Great Lakes port and terminal operating community, ocean vessel operators and agents, and interested promotional agencies participated in the workshop.

With regard to port finances, MARAD began basic research and data collection to update its financial reports on port development expenditures, Federally mandated costs, and public port financing methods and trends through the 1980s.

MARAD provided further assistance to ports in using the Agency's port pricing formula as a guide for establishing reasonably compensatory tariff rates for public marine terminals. This was accomplished through seminars and by working in other ways with regional port groups.

During FY 1983, work continued on development of a port planning information system to integrate data bases involving port facilities, terminal capacities, vessels, and trade into an on-line databank accessed through an interactive computer system. MARAD and the port industry will use this automated data system for analyses and planning for future cargoes, ship types, and intermodal transportation technology.

Planning Program

In its cost-shared port and intermodal planning program, MARAD conducted cooperative port planning studies with local, State, and regional port agencies and associa-

tions; worked with industry on port planning and management information systems, including data base development; and performed economic impact and financial analyses.

The following projects were completed during the year:

- *Delaware River Regional Port Study*—Analyzed long-range port development needs for the Delaware River ports. Under the management of the Delaware River Port Authority, the study area included the port cities of Philadelphia, Pa.; Camden, N.J.; Wilmington, Del.; Chester, Pa.; and Bucks County, Pa.
 - *New York/New Jersey Regional Port Planning Study*—Analyzed future cargo terminal needs and uses of city-owned piers, wharves, docks, and waterfront, including intermodal services and sites of future facilities. The study was managed by the City of New York's Department of Ports and Terminals, assisted by the cities of Bayonne, Elizabeth, Jersey City, and Hoboken, N.J.
 - *Maryland Statewide Port Planning Study*—Analyzed economic, environmental, and institutional impacts on port development within the State of Maryland. Principal study components included cargo demand, terminal capacity, and intermodal connections and services.
- These port planning projects were initiated during FY 1983:
- *U.S. Port Development Expenditure Survey*—To update a periodic MARAD in-house report which analyzes capital expenditure data for marine terminal facilities in the principal ports of the United States. It will include data from 1979–1983 and projections for 1984–1989.
 - *Port Marketing Study*—A cost-shared effort between MARAD and the Northern California Ports and Terminals Bureau, Inc., to identify marketing goals and appropriate regional programs to achieve them. MARAD's objective is to develop a methodology that can assist other regions with similar marketing problems.

- *Port Characteristics System*—To design and develop a port characteristics data file system for use with MARAD's microcomputer equipment. When fully developed, this system will enable MARAD to access a computer data base of key physical and economic features of all major and secondary ports of the United States.
- *Inland Waterway Port Management Information System*—To develop and operate an automated port management information system for use on the U.S. inland waterways. This is a cooperative project with the City of St. Louis, using St. Louis as a demonstration site. Results will be used to promote similar information systems adaptable to the management of other inland riverports and terminals.

During the year, work on the following projects continued:

- *Port Planning Information System*—To expand on the initial development of an integrated and automated port planning analysis system, incorporating various port-related data bases, terminal capacity, facility requirements, commodity flow, vessel movements, and economic impacts.
- *Regional Port Impact Model*—To promote this flexible, self-contained analytical planning tool which enables U.S. ports to prepare regional economic impact assessments and to undertake policy simulations based on changes in a port's activities or its economic environment.
- *Port Economic Impact Kit*—To assist small and medium-sized ports with limited resources and personnel in using the revised economic impact kit. Emphasis is on a simplified methodology which adapts to software programs suitable for microcomputers or desk-top calculators.
- *Port Risk Management Guidebook*—To develop a guide to serve as a reference on port risk management techniques.

- *Public Port Financing in the United States*—To update a 1974 report on public port financing as it relates to port development and expansion.
- *Port Pricing Formula*—To promote the use of this formula to derive reasonable compensatory prices for the use of public marine terminal facilities.
- *Port Facilities Inventory System*—To expand this data base to include the capability of identifying ship berth types at the marine terminal level. A new updating procedure for the computerized port facilities inventory system is being developed.

Operations Program

As in its planning program, MARAD shares the costs of its port and intermodal operations program with industry participants and with other Federal and State agencies. The operations program helps coastal and inland waterway ports, marine terminal operators, and maritime service organizations to improve productivity. The program also develops procedures for operating ports during a national shipping emergency and to respond to other port emergencies.

The following projects were completed during FY 1983:

- *Port and Waterway User Fees*—Investigated effects of proposed cargo ad valorem and cargo ton fee structures on port and vessel operations and on foreign and domestic trades.
- *Delaware Bay Topping-Off Operations*—Coordinated and completed the preparation of an analysis of coal topping-off operations in the Lower Delaware Bay by the use of tug/barge and/or Great Lakes U.S.-flag self-unloaders.
- *Study of U.S. Stevedoring and Marine Terminal Industry*—With the support and assistance of the National Association of Stevedores, prepared a report on the stevedoring and marine terminal industry.
- *Minibrige Report*—Collected new data on intermodal container movements and revised a statistical report on the trends of coast-to-coast cargo movements under minibrige arrangements.
- *Existing and Potential U.S. Coal-Loading Ports*—Completed the collection of data, including an assessment of existing coal-loading facilities at U.S. ports and those under construction or planned.
- *Implications of World Coal Demand on U.S. Port Strategic Planning*—Work was completed on this report by Boston University under a MARAD University Research Program grant. The study extended the Port Expansion System Model to include Atlantic, Pacific, Gulf, and Great Lakes ports for the analysis of export coal transport movements.
- *Coastal Zone '83 National Symposium*—Cosponsored and participated in an exhibit and demonstration of the capabilities of MARAD's Computer-Aided Operations Research Facility (CAORF), the industrial plant vessel program, and related projects at the Coastal Zone '83 National Symposium. Particular interest was expressed in the use of the CAORF simulator for port studies and in the determination of port and waterway channel dredging requirements.
- *East-West Environment and Policy Institute*—Provided technical staff assistance to the East-West Environment and Policy Institute on guidelines for developing coal ports in Asia and the Pacific area. These guidelines will be published in a book entitled *Coal Transportation in Asia and the Pacific*.
- *Coal Export Terminal Design Criteria for Large Shallow-Draft (LSD) Ships*—Studied design criteria for coal terminal shiploading facilities for LSD and wide-beam ships and for the conversion of very large crude carriers to shallow-draft dry-bulk vessels.

- *Dredging, Dredge Disposal, and the London Dumping Convention*—Investigated new methods for dredging and dredge material disposal at U.S. ports, including ocean and upland methods. Participated in the preparation of a report on the classification of dredge materials for ocean dumping.

At the end of the fiscal year, work was continuing on the following projects:

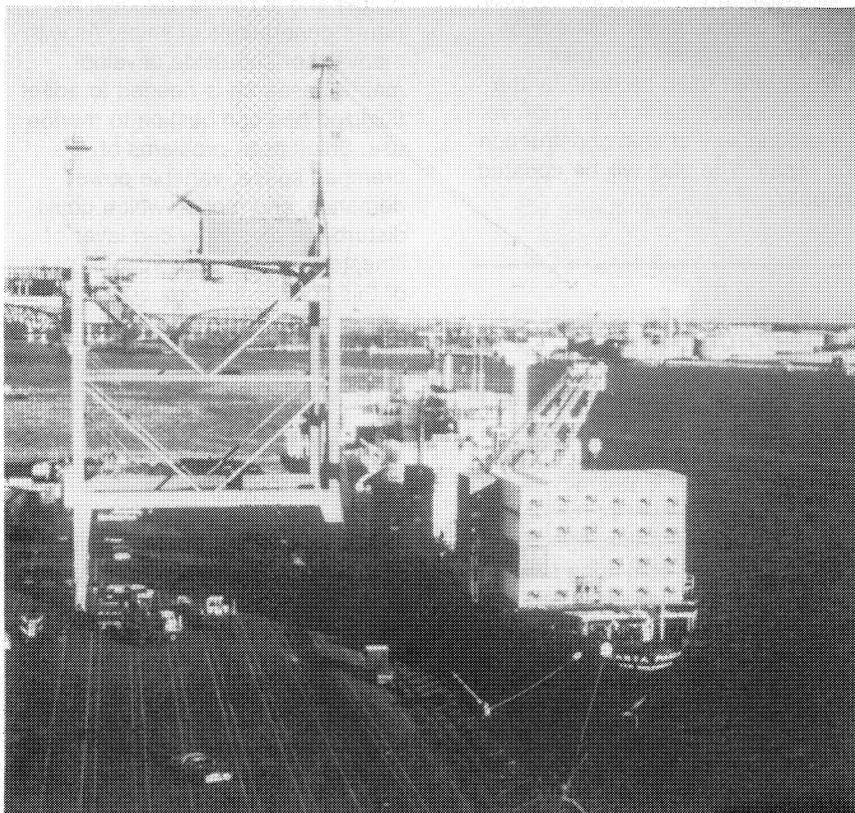
- *National Vessel In-Port Locator System (VIPLOC)*—Demonstrated at the San Francisco Marine Exchange the computer-based system for determining vessel arrivals and departures in U.S. ports. Encouraged the use of the VIPLOC system by the National Association of Maritime Exchanges in developing a nationwide vessel traffic reporting capability.
- *Port Emergency Planning Programs*—Continued the processing of standby Federal Port Controller contracts; cosponsored the formulation of an Interagency Port Readiness Working Group to

develop functional responsibilities within ports during a defense shipping emergency; and assisted the Federal Emergency Management Agency in conducting the Port Emergency Planning System.

- *Marine Transportation Capability Study*—Supported the Department of Energy's Office of Strategic Petroleum Reserve (SPR) in updating and using the SPR Waterborne Distribution Computer Simulation Model.
- *Barge Fleeting Management Study*—Continued work on a barge fleeting management plan for the Lower Mississippi/Louisiana area. The study area embraces New Orleans and other Louisiana port districts. Jointly funded by MARAD and the State of Louisiana, it was being conducted by the St. Bernard Port, Harbor, and Terminal District. The plan will serve as a prototype for other regions of the U.S. inland waterway system.
- *Lightweight Firefighting Module Evaluation*—Tested the lightweight firefighting module (Firefly

II) in various operational modes and locations under MARAD's agreement with the U.S. Navy Facilities Engineering Command. The operational capacity and efficiency of an air transportable pump have been monitored under a variety of conditions at naval and waterfront installations. Testing and evaluation continued as part of a joint venture with the U.S. Navy and the National Aeronautics and Space Administration.

- *Multipurpose Harbor Service Craft Evaluation*—Evaluated the City of Tacoma's highspeed, surface effect ship as a multi-purpose harbor service craft. Underwriters have estimated that ports using the new harbor craft could save \$300,000 to \$400,000 in fire insurance costs.
- *Simulation Technology for Channel Dredging*—Promoted the commercial development of ports and marine transportation systems with MARAD's Computer-Aided Operations Research Facility, specifically in evaluating dredging requirements.



Delta Steamship Lines' containership SANTA PAULA is shown unloading at Philadelphia. In conjunction with the SANTA ROSA, the vessel provides fortnightly service between Philadelphia and Latin America.

Research and Development

The Maritime Administration (MARAD) research program is designed to assist the U.S. maritime industries, including shipbuilders, ship operators, ports, and waterways, in becoming more productive, innovative, and competitive. The program addresses problems common to U.S. shipyards and operators, but which individual organizations could not undertake on their own.

The wide range of research and development (R&D) contracts and cooperative agreements awarded by MARAD in FY 1983 are listed in Appendix III.

Shipbuilding

Shipbuilding research in fiscal year 1983 continued work on long-term projects to improve specific shipbuilding technologies.

The expensive process of welding is perhaps the most important of these technologies. Because so much of a ship is welded, from small brackets to large hull sections, finding better ways to perform this task is crucial to the economics of shipbuilding. Work began during the year on improved submerged arc welding methods, on bulk welding techniques to increase the rate of weld deposition, and on a prototype seam tracking device which will automatically adapt welding parameters (such as speed and amperage) to the geometry of the seam being welded by an automatic welding machine.

Line heating is another technology innovation that promises to be of value to U.S. yards. This process of forming steel plates into different shapes by controlled heating and

cooling is safe and inexpensive. It can minimize erection work, shorten building time, and eliminate the locked-in stresses that occur when two plates are forced into alignment before welding.

Although work on basic technology remains an important part of the program, emphasis is gradually changing toward improvement of the overall process of shipbuilding. The design stage is being expanded to take into consideration more of the problems of production, with design details being made compatible with modular construction. In the preconstruction phase, plans are made in sufficient detail to specify the location and time of installation of all components. Components are classified by the type of installation they require, and similar groups of components are scheduled for installation in a logical sequence on a process lane where specialized workers handle similar tasks time after time. Sub-assemblies are added to fully outfitted zones which are then joined to form large ship modules which can be put in place with no need for follow-up work.

Also during FY 1983, a *Five Year National Shipbuilding Productivity Plan* was published. This plan outlines what must be done by the various industry sectors to improve the productivity of ship construction and repair. The plan will be updated annually.

Ship Machinery

The cost of fuel continued to be a major problem for ship operators, accounting for 60 percent of the operating costs of a steam-powered vessel and 50 percent of the costs of a diesel vessel. It is estimated that conventional coal-firing technology could be updated to reduce this portion to 40 percent. More advanced technology coupled with the use of lower cost alternative fuels might reduce fuel costs to 25 percent of operating costs.

In its efforts to start this downward trend, MARAD was working on

a series of machinery projects in FY 1983. Tests were conducted to burn slurries of petroleum coke in oil in marine boilers as possible replacements for more expensive fuels. In addition, ceramic coatings on diesel components were being tested to see if high speed diesels can adapt to lower grades of fuel.

Coal burning research included the third part of the design of a 26,000 shaft horsepower standardized coal-fired ship. This phase concerns development of production oriented work packages which could be used by shipbuilders to quickly and efficiently build such a ship.

In addition, coal related problems such as suppressing, monitoring, and extinguishing spontaneous fires in coal bunkers and cargo holds, were being addressed as part of an effort to make the next generation of coal-fired ships both efficient and safe.

Finally, plans were initiated to explore the use for fluidized bed combustion for marine power plants. Fluidized bed combustion is an efficient and clean source of power just beginning to find shoreside application. It can use very low grades of fuel and is potentially ideal for future generations of ships. As with many other shoreside developments, research is needed to adapt fluidized bed combustion to marine use. Ships pose problems of cramped space, variable power demands, and motion which could disturb the air-suspended layer of limestone which is an integral part of this combustion process.

Fleet Management Technology

MARAD's Fleet Management Technology Program adapts computer and communications technology to vessel operations, strategic planning, and cargo services.

A continuing cooperative project supported by MARAD, the liner industry, Military Traffic Management Command, and the Military Sealift Command is automating much of

the information flow between shippers and carriers. Under this system, cargo space can be booked from a remote terminal, allocated space on a ship, traced during the movement from origin to destination, and billed to the shipper—all through a network of interconnected computers. The system prototype was tested in FY 1983.

During the year, several ship-board computer projects were completed and the resulting systems put into operation. Included were spare parts control for oceangoing and Great Lakes vessels, maintenance management for Great Lakes vessels, and administrative systems

(payroll, overtime, medical reporting, and chart information retrieval) for oceangoing and Great Lakes vessels.

Work continued during the year on an operations planning system for the positioning of container equipment to minimize leasing costs; a vessel's vital signs monitoring system (diesel) for river towboats; and a study of noise control for small boats operating on the inland waterways and in the offshore drilling industry.

A successful demonstration of computer-to-computer ship-to-shore data communications at medium speed was conducted using satellite

communications (INMARSAT). This was a significant milestone closely followed by further development of similar communications links between microcomputers.

New projects awarded under the FY 1983 Cooperative Industry Research Program included research on several microcomputer-based systems such as strategic planning, steam power plant heat balance, and vessel performance. Other projects included computer-aided training for Great Lakes river pilots, organizational framework for inland waterway cooperative research, and strategic planning for the inland waterway industry.

Delivered in FY 1983, the self-unloading ENERGY INDEPENDENCE is the first coal-burning collier built in the United States since the late 1920s. The 32,300-deadweight-ton ship was built by General Dynamics Corp., Quincy, Mass., for New England Collier Co.



Ship Performance and Safety

Final design and initial construction of an inland waterway communication system was accelerated in FY 1983, after a license for its operation was issued by the Federal Communications Commission. The system will provide reliable automated river communications and thus will improve operational safety and enhance the flow of U.S. river cargo. Both voice and data transmission will be used. The work is funded under a cost-shared MARAD/towboat industry contract.

A separate project, conducted for MARAD by the Department of Transportation's Research and Special Programs Administration, addresses the need for a maritime navigation and communications program for the Great Lakes and St. Lawrence Seaway.

A five-year program to develop, test, and demonstrate a satellite-based ship's distress signalling system was successfully completed during FY 1983. This spread-spectrum system demonstrates one of several communication technologies offered by six countries, from which an international distress system will be developed.

During this fiscal year an experiment continued on copper-nickel test panels sheathing the underwater hull of the tanker ARCO TEXAS. All were found to be holding up well after two years of continuous use. The panels, installed under an agreement between MARAD and ARCO Marine, Inc., had become smoother during the test period and none had broken loose. In a related project, the roughness of hulls and propeller surfaces were measured to find more conventional ways to reduce efficiency losses.

Efforts to develop a speed/fuel monitoring system also were continued. Ship operators using such equipment would be able to identify and measure the effects of factors causing fuel losses.

Cargo Systems

During FY 1983, MARAD published *A Guide to Selecting Shipboard Container and Trailer Restraint Systems*, which examines the effect of ships' motions on restraint systems and provides a method for determining the proper system for specific vessel characteristics. This research project was jointly funded by MARAD, the Society of Naval Architects and Marine Engineers, and private industry.

An analysis of shoreside tests of the Sea Shed cargo system was completed. Sea Sheds are large transport units which allow cellular containerships to carry a full range of oversized cargo, including military cargo, below deck. The shoreside tests simulated shipboard cargo loading and discharging, and demonstrated the operational capabilities of the prototype Sea Shed system.

A joint MARAD/liner industry program for cargo handling productivity improvement was begun in FY 1983. Activities funded during the first year of the program included the testing of systems for automatic identification of container and trailer equipment; establishment of an industry productivity data base which will allow individual carriers to assess their own terminal operations baseline; development of a terminal operations simulation model for identifying problem areas and assessing the effect of operational changes; and a study of the handling requirements of certain commodities not now moving in containers to find ways to allow U.S. container carriers to participate in their carriage.

Another ongoing research and development project is specifically designed to improve cargo handling efficiency in the Great Lakes bulk trades. A *Design Feasibility Study on the LPS Pneumatic Conveying System for Dry Bulk Commodities* is cost-shared with Cleveland Cliffs Iron Co. and World Industry Consultants. Its purpose is to develop a conveyance system using fixed and portable equipment capable of

loading, unloading, transferring, and reclaiming a variety of bulk cargoes.

CAORF

The Computer-Aided Operations Research Facility (CAORF), operated by MARAD at Kings Point, N.Y., is a high fidelity ship simulator. It can simulate a wide range of ship types, ports, and environmental conditions. Research at CAORF is aimed at improving safety and productivity in the maritime industry.

A significant FY 1983 undertaking was the Panama Canal Widening Study. The Panama Canal Commission is planning to modify both the Gaillard Cut and the Pacific entrance to the canal to accommodate the passing of two Panamax vessels. CAORF is simulating various channel configurations to determine which modifications are the most cost-effective.

A CAORF investigation of the feasibility of constructing a fixed mooring facility in Norfolk's Anchorage Z represents the fifth phase of dredging research performed for the Norfolk (Va.) District Corps of Engineers. The proposed facility would accommodate up to six deep-draft vessels in one area, thereby reducing dredging requirements and minimizing costs.

During this reporting period, CAORF assisted the State of Florida in a study of the Tampa Bay area to investigate a variety of channel configurations, aids to navigation alternatives, and special electronic navigational aids for a new Sunshine Skyway Bridge. Tampa Bay pilots made simulated inbound transits through alternative navigational aids in a variety of environmental conditions, including intense thunderstorms and heavy fog. CAORF will determine which of the navigational systems should provide for the safest bridge passage.

Research also continued at the facility to adapt simulation techniques to the needs of training. Simulation based training offers both cost and safety advantages over actual, at-sea experience. A

range of situations can be simulated without risking lives or ships. One FY 1983 study looked at ways to maximize training effectiveness. It examined three forms of performance feedback and their impact on masters' acquisition of local knowledge in unfamiliar waters.

In addition, tug and barge capability was added to CAORF during the year. Various aspects of inland waterway operations can now be investigated.

Advanced Ship Systems

MARAD's Advanced Ship Systems Program seeks to identify and evaluate new shipping opportunities and to find marine uses for new technology. It works with various scientific disciplines to evaluate new concepts that can benefit marine transportation.

A series of special study projects was conducted for MARAD during FY 1983 by the Marine Board of the National Research Council of the National Academy of Sciences/National Academy of Engineering. These projects focused on (1) the Requirements for a Ship Operations Research Program, (2) Effective Manning, and (3) An Assessment of the Maritime Administration's Computer-Aided Operations Research Facility. This work is part of a continuing relationship with the Marine Board to provide analyses of issues of national importance.

In cooperation with a firm that wants to gasify U.S. coal at a transshipment point in Panama, MARAD studied the movement of coal from various inland waterway points in the United States to the gasification plant. Innovations in transportation between the inland waterways and across the Gulf of Mexico are being investigated. The concepts could yield not only increased coal exports but would be of value in grain exports.

During FY 1983, chemical engineering played an important role in the program. This research involves a polyurethane coating that can hold up to the cavitation erosion to which a marine propeller is sub-

jected. The material is used as a propeller coating to prevent the pitting that normally results when a propeller forms cavitation bubbles as it turns in the water. The pitting causes efficiency losses and, eventually, failure of the blades.

Another project investigated electro-active coatings to control corrosion which is accelerated by the electrical conductivity of salt water. Various cathodic protection devices are used on ships to slow this process. The electro-active coating project was awarded through the Department of Transportation's Small Business Innovation Research Program. This Congressionally mandated program sets aside a certain portion of the research budget to work with small firms on innovative ideas.

Marine Science

The MARAD Marine Science Program works to improve ship hydrodynamics, structures, and propulsion.

As a result of a major industry conference, a long-range ship structure research plan was completed during FY 1983. The intergovernmental Ship Structures Committee, which includes MARAD, met to define needs in this area of research over the next 20 years.

Ship maneuvering is a central concern. A new instrumentation package called Maritime Coefficient Identification Systems (MARCIS) is being developed to measure the at-sea maneuvering and seakeeping characteristics of ships. A prototype was tested and plans made for a full-scale trial. When completed, MARCIS will enable naval architects to determine the equations and coefficients of maneuvering response directly from ship trials and will lead to improved confidence in model test predictions for new designs.

During the period, work was completed on mathematical models to analyze damage that would result from certain types of collisions. These models can be used to assist naval architects in designing vessels more capable of surviving collisions.

Ship springing is a structural problem most pronounced on Great Lakes type vessels. MARAD research has demonstrated that it has both linear and nonlinear components. Design information was completed to address the linear component and work was begun on the nonlinear component.

Arctic Shipping

The fifth voyage in a series of MARAD-Coast Guard tests to analyze Arctic shipping conditions was completed during FY 1983. The icebreaker POLAR SEA made a successful trip to Wainwright, Alaska, during March, April, and May 1983. The ship collected environmental data with emphasis on structural loads imposed by ice as measured by instrumentation on the bow of the vessel.

Over the past five years this program has collected much information on the effects of ice on ship hulls. Many ice ridges were profiled and ice cores taken in the Beaufort, Chukchi, and Bering Seas; and a historic winter voyage to Point Barrow on the North Coast of Alaska was completed. Winter operations were shown to be feasible in the Bering Sea.

Long-range goals include developing design criteria for ships engaged in the year-round transportation of Alaskan resources.

University Research

MARAD solicits research ideas each year from the academic community. This program brings a new perspective to the problems of the maritime industry, attempts to apply new ideas to its research program, and encourages new talent to enter the industry.

In FY 1983, work was undertaken on construction scheduling for mobilization ships; optimization schemes; computer-aided fleet development; a decision-support system for port planning, financing, and management; and a study of ways to increase minority and female employment in the maritime industry.

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, monitors maritime labor policies with national and international organizations, and promotes peaceful labor relations.

U.S. Merchant Marine Academy

The U.S. Merchant Marine Academy at Kings Point, N.Y., is responsible for training 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.

All graduates receive U.S. Coast Guard licenses as deck or engineering officers or both and Bachelor of Science degrees. Most graduates are also offered commissions as ensigns in the U.S. Naval Reserve.

Secretary of Transportation Elizabeth Hanford Dole was the keynote speaker at the Academy's 47th commencement. The Class of 1983 included 113 third mates, 102 third assistant engineers, and 22 graduates who completed the dual deck/engine program. There were 19 women among the graduates. Approximately 90 percent of the 237 graduates found employment in the maritime industry aboard ship or ashore, or were assigned to active duty in the Navy or Coast Guard.

Average enrollment at the Academy during the year was 1,097.

At the beginning of the 1983-84 school year, the regiment of mid-

shipmen included 91 women—18 of whom were scheduled to graduate in June 1984.

Members of Congress nominated 2,300 constituents for the Class of 1987. A total of 325 appointments were made in fiscal year 1983.

To more effectively prepare midshipmen for careers in the modern merchant marine, a new Department of Marine Transportation was created at Kings Point during the year. The new department combines the functions of the former Department of Nautical Science and Department of Maritime Law and Economics.

Construction continued during FY 1983 on modernization of the midshipmen's dormitories. The 40-year-old buildings' safety, fire code, electrical, and plumbing systems are being upgraded. Work also was initiated to improve the Academy's waterfront.

The campus-based, nonprofit U.S. Maritime Resource Center sponsored three conferences on maritime industry financial planning and management controls during this fiscal year. Additionally, in conjunction with the alumni-sponsored foundation, a study was begun to examine the feasibility of building a conference center with housing accommodations at the Academy for an expanded Resource Center operation.

State Maritime Academies

MARAD provides financial assistance to six State maritime academies in accordance with the Maritime Education and Training Act of 1980. That legislation provides for the training of merchant marine officers to meet national objectives stated in the Merchant Marine Act of 1936, as amended.

The State academies are located at Vallejo, Calif.; Castine, Maine; Buzzards Bay, Mass.; Traverse City, Mich.; Fort Schuyler, N.Y.; and Galveston, Tex.

Seven hundred eighteen cadets graduated from the six academies in 1983.

In addition to U.S. Coast Guard licenses, graduates of five academies receive Bachelor of Science degrees (associate degrees are awarded by the Great Lakes Academy) and, if qualified, are commissioned as ensigns in the U.S. Naval Reserve.

After graduation, 60 percent of the graduates found employment in the maritime industry aboard ship or ashore, or were serving on active duty in the Navy or Coast Guard.

The Maritime Education and Training Act of 1980 (Public Law 96-453) provides for a mandatory three-year service obligation in the U.S. merchant marine for all subsidized students as a condition to receiving an annual \$1,200 Student Incentive Payment for all graduating classes entering after April 1982. The statute also provides midshipman status in the U.S. Naval Reserve to all eligible students.

Fire Training

MARAD's Central Region Merchant Seamen Fire Training Facility was transferred by formal agreement to the Delgado Community College in New Orleans in fiscal year 1983. This transfer was consistent with the Administration's policy of reducing Federal spending and, whenever feasible, returning services and functions to State, local, or private control.

In its first full year of operation (FY 1983), MARAD's Swanton, Ohio, fire school trained 499 students. In conjunction with the U.S. Navy's Military Sealift Command (MSC), MARAD also sponsored firefighting and damage control courses for 2,013 seamen at Earle, N.J., and Treasure Island (San Francisco).

Because of significant increases in the costs of conducting the fire training program, a fee of \$25 per student training day was instituted July 1, 1983.

Labor Relations

A strike by Pacific Coast District Metal Trades Council began July 26,

Table 19: MARITIME WORKFORCE AVERAGE MONTHLY EMPLOYMENT

	Average Monthly Employment in Fiscal Year:	
	1982	1983
Seafaring Shipboard Jobs:	22,861	20,695
Shipyards¹:	114,347	106,446
Production Workers	89,968	84,713
Management and Clerical	24,379	24,733
Longshore:	42,380	34,727

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

1983, and affected nine shipyards with Navy construction or repair work. There was no impact on commercial ship construction.

A dispute which began in early 1982 between the International Longshoremen's Association (ILA) and the Seafarers International Union (SIU) over recognition as bargaining agent for Trailer Marine Transport Corp. (TMT) was ended by the National Labor Relations Board (NLRB). The NLRB issued a cease and desist order in August 1983 against three ILA locals for attempting to require TMT to recognize the ILA as the bargaining agent at the Delaware River Terminal.

Labor Data

During FY 1983, average monthly U.S. seafaring employment in all sectors (private, Government contract, and Great Lakes) decreased from 22,861 to 20,695, a 9.5 percent decline from FY 1982. (See Table 19.) Meanwhile, the total workforce in selected U.S. commercial shipyards decreased by 6.9 percent, from 114,347 to 106,446, and average longshore employment declined from 42,380 to 34,727, down 18 percent.

Merchant Marine Awards

The Merchant Marine Medals Act of 1956 authorizes the Secretary of Commerce and Secretary of Trans-

portation to grant medals and decorations for outstanding and meritorious service or participation in national defense action.

During the year, the Energy Transportation Corp., a U.S.-flag carrier of liquefied natural gas, received the Department of Transportation's Award for Exceptional Public Service. Since May 1979 the officers and crew of seven Energy Transportation Corp. ships sailing from Indochina to Japan have rescued over 1,000 Indochinese refugees from boats at sea.

Three seamen were specifically cited in two separate heroic actions and awarded medals for distinguished or meritorious service.

One of these actions involved the LNG ARIES in the South China Sea. Cargo Engineer Randy C. Doty and Able Seaman Ben Rajab received Meritorious Service Medals. Both voluntarily exposed themselves to hazards while rescuing 47 Vietnamese refugees on June 23, 1982. Additional citations were awarded to the ship's master and crew.

Seaman Amos P. Cardoza received the Distinguished Service Medal for valor beyond the line of duty for rescuing several Massachusetts Maritime Academy cadets from the burning T/S BAY STATE on December 22, 1981, at Buzzards Bay, Mass. His heroic effort saved the lives of the cadets, who escaped with minor injuries.



Secretary of Transportation Elizabeth Hanford Dole is shown participating in the 1983 graduation exercises of the U.S. Merchant Marine Academy.

National Security

The Maritime Administration (MARAD) maintains the National Defense Reserve Fleet (NDRF) as a ready source of vessels and assists the U.S. maritime industry in fulfilling its traditional role as the Nation's fourth arm of defense in providing logistical support to the military services during national emergencies.

MARAD works closely with the U.S. Navy and other Government Agencies to enhance the national defense posture of the American shipping and shipbuilding industries.

Reserve Fleet

Vessels of the NDRF are available for use in both military and non-military emergencies, including commercial shipping crises. They include non-active merchant ships as well as naval auxiliaries at three locations—James River, Va.; Beaumont, Tex.; and Suisun Bay, Calif. (See Tables 20 and 21.)

The NDRF consisted of 304 ships on September 30, 1983.

During this fiscal year 52 ships were added to the fleet and 50 were withdrawn.

The number of NDRF vessels in the Fleet Preservation Program, which involves conventional preservation, dehumidification, and cathodic protection, increased from 245 to 254 during fiscal year 1983.

Ready Reserve Force

The Ready Reserve Force is a joint program of MARAD and the U.S. Navy. It is a select component of the NDRF consisting of vessels which can be activated for sealift operations on 5 to 10 days' notice.

Other NDRF vessels require an average of four weeks for activation. There were 32 vessels in this select group as of September 30, 1983.

Periodic activation tests are conducted without advance warning to ensure military readiness of RRF vessels and to validate maintenance procedures. These operations require activating a ship, crewing, storing, fueling, conducting 24-hour sea trials, and positioning the ship on a military loading berth—ready to load—within 5 to 10 days.

Activation tests conducted in FY 1983 made use of the sealift capacity provided to move important Department of Defense cargoes. The two vessels successfully activated completed a total of 120 days of operations under the control of the Military Sealift Command before being returned to the RRF.

Trade-Ins

During FY 1983, MARAD authorized three subsidized operators to trade in vessels to the NDRF under Section 510 of the Merchant Marine Act, 1936, as amended.

- American President Lines, Ltd. (APL) received permission to trade in the containerships PRESIDENT POLK and PRESIDENT EISENHOWER against the purchase of three C9 container vessels being built by Avondale Shipyards, Inc., and permission to trade-in the containership PRESIDENT ROOSEVELT against the purchase price of two of the C9's. Subsequently, APL was permitted to substitute the breakbulk ships DEL MONTE, DEL VIENTO, and DEL VALLE for the PRESIDENTS EISENHOWER and ROOSEVELT under the trade-in arrangements.
- Waterman Steamship Corp. traded in two breakbulk vessels, the JEFF DAVIS and THOMAS NELSON, for equivalent scrap tonnage from the NDRF.
- Falcon I Sea Transport Co., L.P., and Falcon II Sea Transport Co., L.P., received permission to trade in up to 11 Challenger and Racer class breakbulk vessels against

the purchase price of two T6 tankers being built by Bath Iron Works, Inc. The traded-in vessels were acquired from Farrell Lines, Inc., which had obtained them from United States Lines, Inc.

Ship Sales

MARAD sold two Government-owned vessels for scrap or non-transportation use for an aggregate return to the Government of \$45,621.50. One of these vessels was sold from an NDRF anchorage for \$17,666; the other was sold from a non-fleet location for \$27,955.50.

Sale of 2,096 vessels from the NDRF from 1958 through 1983 has brought a total return to the Government of \$168.6 million. Sale of 222 vessels from locations outside the NDRF from 1958 through 1983 brought a total return of \$34.3 million. In summary, from 1958 through 1983, a total of 2,318 vessels were sold for scrap or non-transportation use for a total return to the Government of \$202.9 million.

War-Risk Insurance

MARAD is authorized by Title XII of the Merchant Marine Act, 1936, as amended, to administer the war-risk insurance program. The program insures operators and seamen against losses resulting from war or war-like actions during periods when commercial insurance is not available on reasonable terms and conditions.

At the end of FY 1983, there were 1,812 binders outstanding under this program. These binders will be effective for 30 days following automatic termination of commercial insurance. Outstanding binders on September 30, 1983, included 645 for war-risk hull and machinery insurance, 645 for war-risk protection and indemnity insurance, and 522 for second seamen's war-risk insurance. There were 53 foreign-flag vessels covered in each category except second seamen's, for which 15 were covered.

Table 20: NATIONAL DEFENSE RESERVE FLEET—SEPTEMBER 30, 1983

Fleet Sites	Retention ¹	Scrap Candidates	Special Programs ²	Totals
James River, Va.	117	12	37	166
Beaumont, Texas	46	0	2	48
Suisun Bay, Calif.	87	0	4	91
Totals:	250	12	43	305

¹ Vessels maintained for emergency activation under the fleet preservation program.

² Excludes the ATLANTIC BEAR moored alongside the James River Reserve Fleet.

Table 21: NATIONAL DEFENSE RESERVE FLEET, 1945–1983

Fiscal Year	Ships	Fiscal Year	Ships
1945	5	1965	1594
1946	1421	1966	1327
1947	1204	1967	1152
1948	1675	1968	1062
1949	1934	1969	1017
1950	2277	1970	1027
1951	1767	1971	860
1952	1853	1972	673
1953	1932	1973	541
1954	2067	1974	487
1955	2068	1975	419
1956	2061	1976	348
1957	1889	1977	333
1958	2074	1978	306
1959	2060	1979	317
1960	2000	1980	320
1961	1923	1981	317
1962	1862	1982	303
1963	1819	1983	305
1964	1739		

No binders or policies were outstanding in MARAD's related standby war-risk cargo insurance and builder's risk insurance programs. However, 38 commercial underwriting agents were under standby contracts for the war-risk cargo insurance program.

From the start of the binder program in 1952 through September 30, 1983, binder fees totaled \$1.45 million, while program expenses totaled \$2.5 million. Income from war-risk builder's risk insurance totaled \$3.5 million and investment income as provided for in Section 1208(a) of the act amounted to \$8.3 million. As of September 30, 1983, assets of the war-risk revolving fund totaled \$10.75 million.

At the request of the U.S. Navy, MARAD also provides second seamen's war-risk insurance without premium charge, but on a reimbursable basis for losses incurred, as authorized by Section 1205 of the 1936 act. Crews of 5 Government-owned tankers and 13 privately owned, U.S.-flag tankers under bareboat charter to MSC were insured under this program in FY 1983. After deducting claim payments of \$110,740, the net savings to the Navy since inception of

the program are estimated to be \$2.14 million.

Marine Insurance

MARAD continued to act as the claim agent for Government-owned vessels during fiscal year 1983. On September 30, 1983, there were 21 protection and indemnity claims outstanding; 6 were in litigation. Three of the claims are from the Vietnam era.

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 22 shows marine and war-risk insurance approved in FY 1983.

Emergency Readiness

The Maritime Administration and the U.S. Coast Guard merged MARAD's U.S. Merchant Vessel Locator Filing System (USMER) with the Coast Guard's Automated Mutual Assistance Vessel Rescue

System (AMVER) in FY 1983. The USMER program required U.S.-flag merchant ships in foreign trade and certain American-owned foreign-flag ships to report departures, arrivals, and at-sea positions every 48 hours for national security purposes. AMVER is an international voluntary system established to coordinate search and rescue operations worldwide.

The revised arrangements consolidate two reports into one and provide to the search and rescue system the advantage of mandatory reporting by American ships. All vessels previously required to file USMER reports have begun filing the new mandatory AMVER reports through an expanded worldwide network of coastal radio stations.

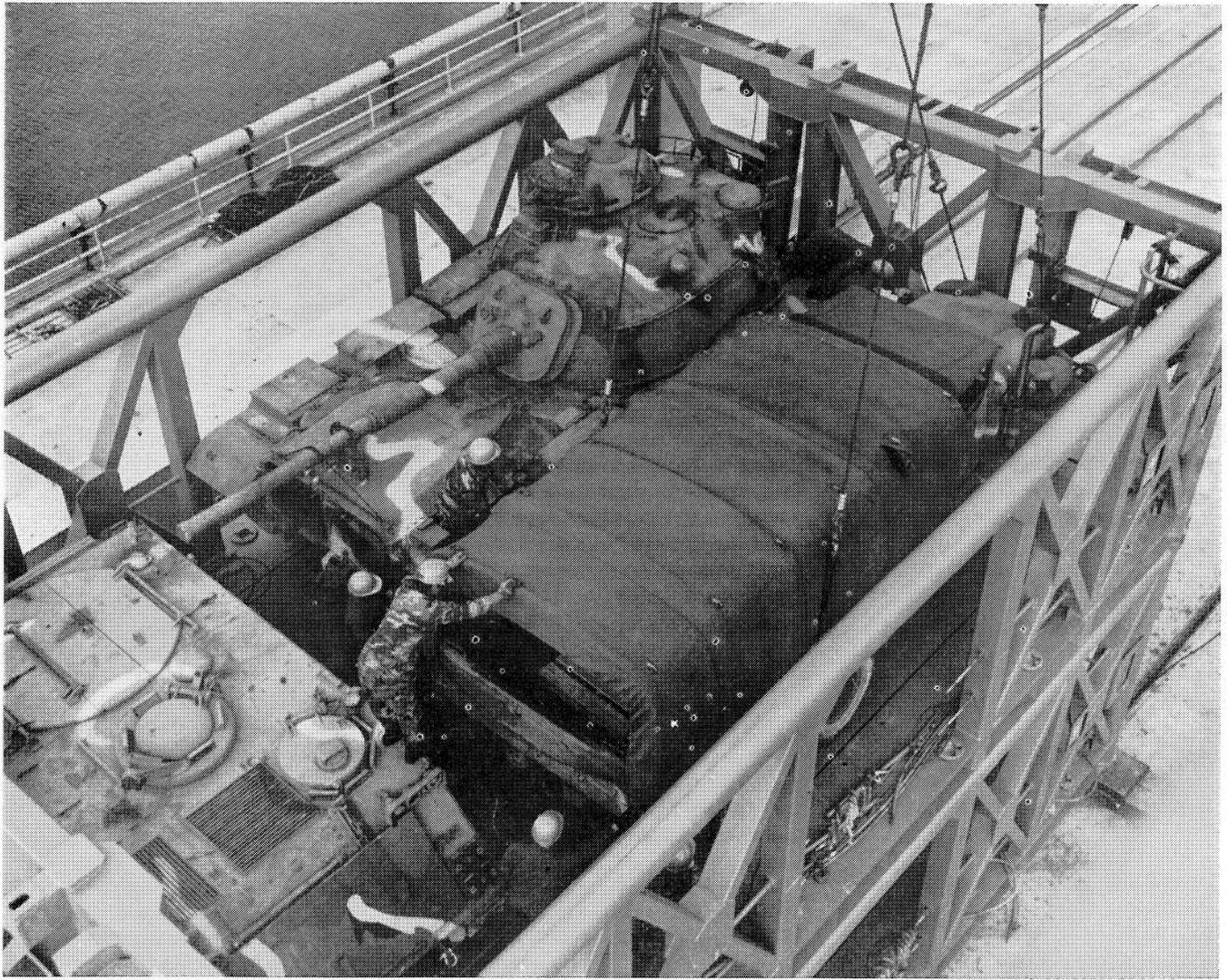
Facilities of MARAD's emergency operations center were updated during FY 1983 with the installation of modern, medium-speed communications and data processing equipment. Several large-scale military and civilian exercises enhanced staff preparedness.

MARAD hosted a major training session for the NATO Defense Shipping Authority at which plans for NATO wartime shipping operations were tested and evaluated.

Table 22: MARINE AND WAR-RISK INSURANCE APPROVED IN FY 1983

Kind of Insurance	Total Amount	Percentage	
		American	Foreign
Marine Hull and Machinery	\$9,001,053,000	58	42
Marine Protection and Indemnity	¹		
War-Risk Hull and Machinery	8,610,347,000	60	40
War-Risk Protection and Indemnity	8,610,347,000	60	40

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.



SEA SHEDs provide good stowage capability aboard containerships for large vehicles and equipment. Shown are an M-60 tank, a 5-ton truck and an armored personnel carrier during operational tests at Sunny Point, N.C. See also photo, page vi.

Chapter 9

International Activities

The Maritime Administration (MARAD) participated in bilateral maritime discussions with the People's Republic of China (P.R.C.), Venezuela, and the Philippines and took part in maritime forums sponsored by international agencies during fiscal year 1983.

The Agency continued to assist American maritime and trade interests abroad through representatives in London, Brussels, Athens, Rio de Janeiro, and Tokyo.

U.S.-P.R.C. Maritime Agreement

Maritime delegations from the United States and the People's Republic of China met three times in FY 1983.

The Maritime Administrator led a delegation to Beijing for the annual meeting of the designated representatives of the U.S./P.R.C. Maritime Agreement from October 5 to October 8, 1982. As a result of these meetings each party agreed to allow national flag vessels of the other party to move empty containers between its ports.

The first round of negotiations on a new maritime agreement took place in Washington, D.C., April 11-14, 1983. During these discussions the U.S. delegation stressed the importance of ensuring an equitable balance of benefits to the two countries in a new agreement.

The second round of negotiations was held in Beijing August 29-September 1, 1983. While agreement was reached on some of the articles to be contained in a proposed new agreement, several important issues remained to be resolved.

No new maritime agreement was reached during this reporting period. The then-existing agreement was extended for 90 days, to December 17, 1983.

Maritime Discussions with the Philippines

Maritime discussions between the United States and the Philippines were held in February 1983. The objective of these talks was to harmonize the maritime policies of the two countries. During the discussions the United States delegation provided a working draft of a maritime agreement for review by the Philippine representatives.

Maritime Discussions with Venezuela

As members of an interagency delegation, MARAD officials met with Venezuelan government representatives during FY 1983. The meetings resulted from U.S.-flag and third-flag carrier complaints about Venezuelan protectionist practices in the bilateral trade. The problem was resolved without resorting to sanctions authorized under Section 19 of the Merchant Marine Act of 1920.

Discussions on a broader bilateral maritime agreement were planned.

Other Bilateral Maritime Discussions

The MARAD delegation which took part in negotiations in the P.R.C. also discussed bilateral shipping relations with South Korea and Japan.

Consultative Shipping Group

During fiscal year 1983, MARAD officials served as members of a U.S. negotiating team which met three times with the Consultative

Shipping Group (CSG) government representatives of the principal European maritime nations and Japan. Unlike the United States, all CSG governments stated their intentions to become contracting parties to the U.N. Code of Conduct for Liner Conferences. The discussions attempted to develop an agreement to preserve the maximum competitive access to liner trades once the code is widely in force. Differing competitive and regulatory regimes in participating countries have made reaching agreement difficult, but further discussions were planned.

Other International Conferences

During FY 1983, MARAD represented the United States Government at a meeting of the Permanent Technical Committee on Ports of the Organization of American States (OAS) in Acapulco, Mexico. A resolution was passed to reestablish, in conjunction with the OAS and the American Association of Port Authorities, the "Puertos Amigos Program" leading to the operational and management training of Latin American port representatives at U.S. ports. MARAD's Office of Port and Intermodal Development was elected to chair the newly formed committee on port training for the period of 1983-1985. In conjunction with the OAS and the Maryland State Police, MARAD sponsored and conducted a three-week "Port Safety and Security Seminar" for Latin American port officials at Pikesville, Md.

MARAD officials attended meetings of several other international organizations, including the International Maritime Organization, the Organization for Economic Cooperation and Development including its Maritime Transport Committee and Special Group on International Organizations, and the United Nations Conference on Trade and Development's Committee on Shipping.

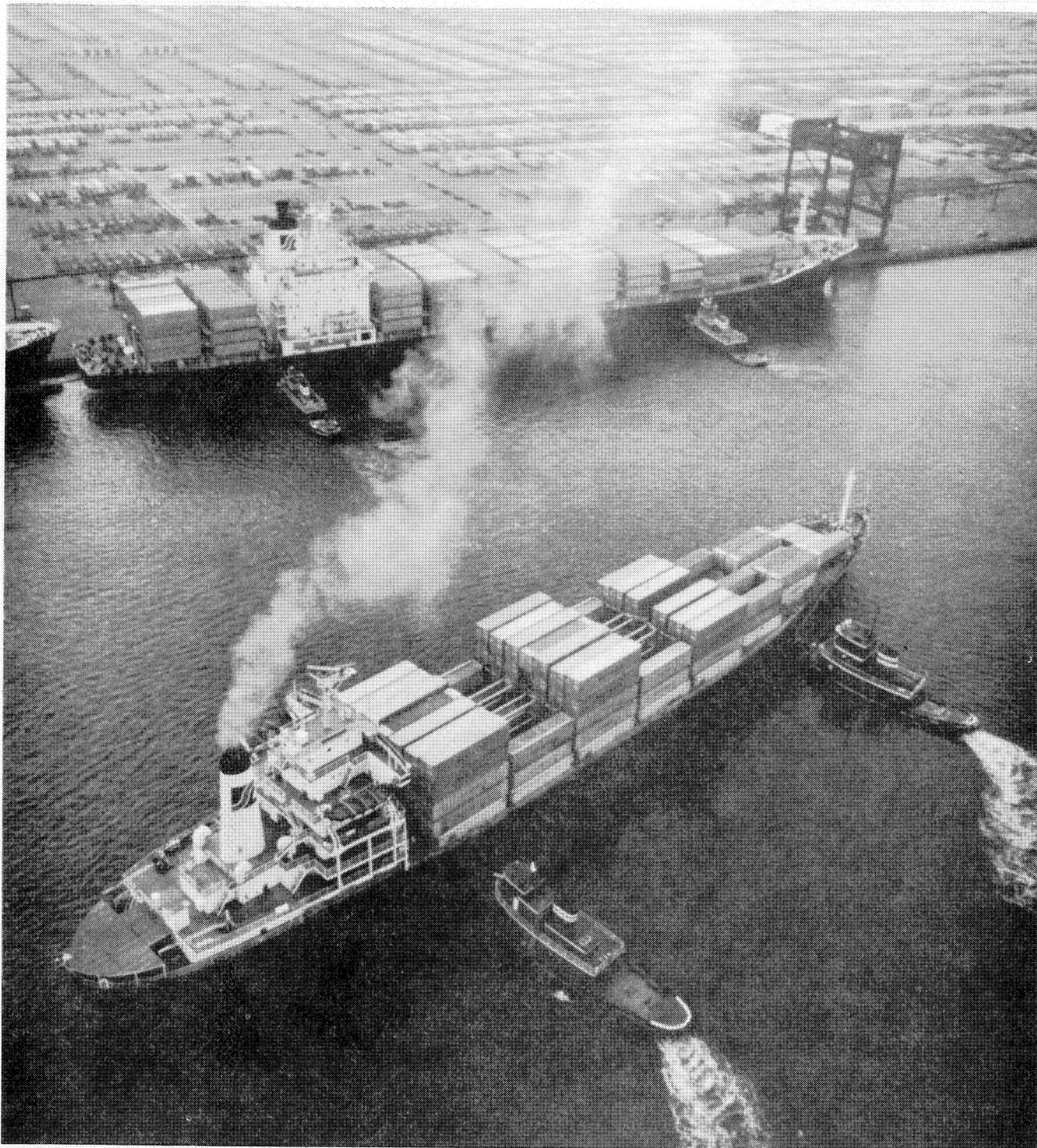
The Agency also participated in meetings of the North Atlantic Treaty Organization dealing with maritime affairs.

A number of discussions were held during the year with the Canadian Government, including consultations on the Beaufort Sea and the Arctic, and on proposed St. Lawrence Seaway/Great Lakes initiatives.

The Ninth Annual Meeting of the International Maritime Simulation Forum, held in Cardiff, Wales, was chaired by MARAD.

The Agency also participated in the U.S. Department of Transportation/Dutch Ministry of Transport

Science and Technology Exchange Program; discussions in Egypt on wheat flour purchases; and the Transportation and Port Development Task Forces and the International Forum of the Southern States Energy Board in Rotterdam, the Netherlands.



Sea-Land Service, Inc. which pioneered containerization, today is one of the world's largest carriers. Shown are operations at company's Port Elizabeth, N.J., terminal.

Administration

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

Maritime Subsidy Board

The Secretary of Transportation has delegated to the Maritime Subsidy Board (MSB) authority to award, amend, and terminate contracts subsidizing the construction and operation of U.S.-flag vessels in the foreign commerce of the United States.

No new subsidy were awarded in fiscal year 1983.

To perform its functions, the MSB holds public hearings, conducts fact-finding investigations, and compiles and analyzes trade statistics and cost data. MSB decisions and actions are subject to review by the Secretary of Transportation.

The board is composed of the Maritime Administrator, who is Chairman; the Deputy Maritime Administrator; and the Agency's Chief Counsel. The Secretary of the Maritime Administration and the MSB acts as an alternate member.

The MSB met 29 times in FY 1983. It considered and acted on 147 items and issued 18 formal opinions, rulings, and orders. It published 10 notices in the *Federal Register* on such matters as those requiring statutory hearings and the development and adoption of rules and regulations in the implementation of the Merchant Marine Act, 1936, as amended.

The board took several significant actions to further the goals of the Administration to strengthen the American merchant marine.

On May 26, 1983, the MSB approved the sale by Farrell Lines, Inc., of four C-8 type containerships to United States Lines, Inc. (USL),

and the assignment to USL of Farrell's rights to provide subsidized service on Trade Route 16 (U.S. Atlantic and Gulf Coasts/Australia and New Zealand). USL had stated its intention to modify the ships to increase their container capacity and use them in its U.S. Atlantic/Western Europe service.

On February 16, 1983, the MSB found that Section 605(c) of the act, which grants intervenors a hearing in certain circumstances, was not a bar to an application of Equity Carriers, Inc. Equity sought to amend its operating-differential subsidy (ODS) agreement, Contract No. MA/MSB-439, to substitute six 80,000-deadweight-ton (dwt.) ore/bulk/oil (OBO) vessels for two dry-bulk vessels covered by the contract. The application was pending at the end of the reporting period.

On August 31, 1983, the MSB issued a tentative order on the application of Aeron Marine Shipping Co., *et. al*, to carry with subsidy certain cargo subject to the cargo preference laws of the United States. Comments were sought from interested parties.

On May 16, 1983, Sea-Land Service, Inc., a nonsubsidized carrier, requested that MARAD promulgate guidelines for the handling of proposals for the early termination of existing ODS agreements. During the year, one subsidized operator, Delta Steamship Lines, Inc., proposed that its ODS agreement be terminated in exchange for payments of \$525 million by the Government to Delta. Both Sea-Land's request for guidelines and Delta's proposal were pending at the end of FY 1983.

Legal Services, Legislation, and Litigation

The Chief Counsel of the Maritime Administration advises the Administrator and MARAD on all legal issues involved in administering the Merchant Marine Act, 1936, as amended, and other statutes related to the Agency's mission and pro-

grams including ship financing guarantees, subsidy matters, vessel transfers, and capital construction funds. The office provides legal support for procurement transactions, personnel matters, and public information activities for MARAD, its field offices, and the U.S. Merchant Marine Academy.

Legal assistance is provided on rulemakings, legislation, and litigation affecting MARAD programs and waterborne commerce.

In FY 1983, significant rulemaking activities included the preparation of revised MARAD regulations on accounting procedures, economic and financial standards for evaluating Title XI ship financing guarantee applications, and, as noted above, proposed guidelines for amending or terminating long-term ODS contracts.

Also in FY 1983, the Secretary of Transportation published a notice of proposed rulemaking setting forth terms and conditions under which owners of tankers built with construction-differential subsidy (CDS) could gain full domestic trading privileges by repaying the CDS, with interest, to the Government.

Comments on the proposal were invited, and no final action was taken during the reporting period.

Major legislative efforts in the first session of the 98th Congress were directed toward enactment of comprehensive maritime regulatory reform and the presentation of a maritime promotional package.

Pursuant to Public Law 98-89, enacted in August, 1983, the Deputy Chief Counsel, as the Secretary's designated representative, began a major legislative project to codify those provisions of Title 46, United States Code, related to shipping and maritime matters within DOT's jurisdiction.

Legal services of a varied and complex nature were provided to the Ship Financing Guarantee Program in a broad spectrum of activities. These included major guaranteed debt assumptions by stronger companies, debt deferments, debt service advances, workout loan agreements, and ves-

sel sales. Regular and continuing program activities included new letter commitments, issuance of new guarantees, note rollovers, sale and lease-back transactions, and a very large number of other administrative matters.

In FY 1983 there was an unprecedented surge in the volume of court actions and administrative claims against MARAD for damages allegedly caused by individual exposure to asbestos onboard Government vessels and in shipyard working environments. One major asbestos manufacturer invoked the protection of the Federal Bankruptcy Act and sought indemnification from the Government for past claims. MARAD provided litigation support to the Department of Justice in processing and defending against these claims.

The volume of litigation directly involving MARAD programs also increased. The Agency reviewed applications for ODS contract terminations and CDS payback applications and took foreclosure and other actions in response to defaults and bankruptcy proceedings to protect the Government's interests in vessels and equipment whose financing was guaranteed under Title XI of the 1936 act.

In addition, assistance was provided in the interpretation and application of cargo preference laws. Major developments which required legal guidance included a DOT agreement with the Department of Energy (DOE) for DOE to make up a shortfall in preference shipments, and establishment of a 50 percent U.S.-flag shipping requirement for the first payment-in-kind export transaction administered by the Department of Agriculture.

Management Initiatives

The headquarters of MARAD's Great Lakes Region Office was moved from Cleveland, Ohio, to Des Plaines, Ill., in September 1983. The

move was intended to provide a closer, more effective working relationship between MARAD and regional marketing staffs of ports and steamship companies and other Federal regional offices located in Chicago and vicinity.

Also during this reporting period, the Office of Subsidy Contracts was abolished and its functions reassigned to the Office of Ship Financing Guarantees and the Office of Trade Studies and Statistics, which were redesignated Office of Ship Financing and Office of Trade Studies and Subsidy Contracts, respectively. These reorganizations placed closely related functions under the direction of a single manager.

Consistent with the Administration's policy to reduce reports required by the Government, MARAD revised two of its regulations in FY 1983.

The Agency completely revised Form MA-172 Financial Report used by companies receiving financial assistance to report their annual and semiannual financial condition. The new format permits uniform financial reporting from all segments of the maritime industry and reduces the quantity of financial data to be submitted from 102 to 17 pages. The new regulations also provide greater flexibility and permit, within defined boundaries, the substitution of certain supporting information with comparable information taken directly from the companies' annual reports to stockholders.

This revision was specifically designed for use in MARAD's financial review and contract surveillance computer system which will provide financial analyses on both a company-by-company or industry-wide basis. The revision will result in considerable savings to private industry and the Government.

The second policy change on MARAD reports reduces the retention period for documents supporting subsidy payments from six to two years after final release or settlement of the subsidy contracts.

Subsidized companies will benefit from this change without any loss to the Government.

Audits

During FY 1983, DOT's Office of the Inspector General submitted final internal audit reports to MARAD on *Repayment of Construction-Differential Subsidy; Management of the Federal Ship Financing Guarantee Program; Financial Management and Reporting of Receivables; MARAD Assistance and Student Subsistence of the Massachusetts Maritime Academy, the Texas Maritime College, the Maine Maritime Academy, and the State University of New York Maritime College; and Procurement of Repairs and Overhaul of MARAD-owned Vessels*. The Agency generally agreed with the recommendations and took appropriate action.

The General Accounting Office submitted no final audit report to MARAD during this reporting period.

Financial Analysis

MARAD completed development of an automated data system designed to enhance the Agency's financial analysis capabilities while improving the surveillance of contractors' financial agreements. The Financial Review and Contract Surveillance System—incorporated late in FY 1983 into an existing system of financial and contract reviews—contains financial, operating, and contract information on all U.S.-flag operators receiving government assistance.

Information Management

During FY 1983, MARAD completed the consolidation of all office

automation activities and initiated major efforts to upgrade its information management capabilities with the most modern technology available. The new automation network will enhance closer cooperation and sharing of information between offices.

As an interim step, a few micro-computers were installed, and several applications were developed to improve MARAD's ability to respond to inquiries.

Initiatives to upgrade the U.S. Merchant Marine Academy's automatic data processing (ADP) capabilities for both academic and administrative systems also were undertaken in FY 1983.

Waterborne trade data was made more readily available to MARAD offices and a more comprehensive system for developing bilateral trade reports was established during the year.

Ways to assist the Agency in monitoring compliance with the cargo preference laws also were explored.

In addition, the Agency established a task force on ADP resource and telecommunications systems in support of the National Shipping Authority.

Personnel

Employment in the Maritime Administration declined from 1,232 to 1,066 in FY 1983.

The impact of the reduction-in-force which occurred in September 1983 was minimized in headquarters by attrition and the use of vacancies to absorb displaced employees. However, field activities were reduced substantially, requiring a number of separations.

The percentage of MARAD's female and minority employees and their representation in supervisory positions remained stable during the period, as did the percentage of handicapped employees.

Two upward mobility positions were established during FY 1983.

MARAD employee attendance at formal Agency-sponsored training programs in FY 1983 was approximately 325. Twenty courses were offered within the Agency's facilities.

Twenty-two MARAD employees received high honors in FY 1983. Four Silver Medals, thirteen Bronze Medals, and five Secretary's Awards for Excellence were approved. Performance awards went to 96 Agency employees—33 quality step increases and 63 special achievement awards.

The Office of Personnel Management approved MARAD's revised Merit Pay System document. The number of employees covered under the system decreased from 160 to 153; field personnel reductions eliminated several employees designated as supervisors under the Civil Service Reform Act.

Forty percent of the Agency's full-time permanent workforce is represented by labor unions; 81 percent of the employees represented are covered by collective bargaining agreements; and 52 percent of the employees represented have dues withholding allotments. The six recognized bargaining units are located in field activities.

Safety Program

In FY 1983, the Agency implemented the Medical Surveillance Program of the *Action Plan for the Control of Asbestos Exposures and Uses in MARAD Programs*.

MARAD reserve fleet employees exposed to hazardous substances or conditions (asbestos, lead, excessive noise, etc.) were provided medical examinations during the year. MARAD headquarters employees also will be given medical examinations.

In conjunction with the Medical Surveillance Program, the Agency

will provide the National Defense Reserve Fleet sites with industrial hygiene services to conduct periodic surveys of the facilities and to target all health hazards.

Installations and Logistics

Real Property

MARAD's real property at the end of FY 1983 included National Defense Reserve Fleet sites at Suisun Bay, Calif., Beaumont, Tex., and James River, Va.; a warehouse at Kearney, N.J.; the U.S. Merchant Marine Academy at Kings Point, N.Y.; and the Wilmington, N.C., Maritime Facility.

Facilities for training maritime firefighters are operated at Earle, N.J., and Treasure Island, Calif., under agreements with the U.S. Navy, and by MARAD at Swanton, Ohio. During the year, the firefighting facility at New Orleans, La., was transferred to private operation.

Regional offices are maintained in New York, N.Y.; New Orleans, La.; Des Plaines, Ill.; and San Francisco, Calif. Market Development Offices are maintained in Long Beach, Calif.; Swanton, Ohio; Seattle, Wash.; Houston, Tex.; and the four regional headquarters.

The Agency also maintains the National Maritime Research Center at Kings Point, N.Y., and Ship Management Offices in Norfolk, Va., and New York City.

MARAD's Hoboken, N.J., terminal continued under lease to the Port Authority of New York and New Jersey during this reporting period. However, as required by Public Law 97-268, action has been initiated by the General Services Administration to transfer the terminal for the fair market value, without warranty of any kind, to the City of Hoboken.

Accounting

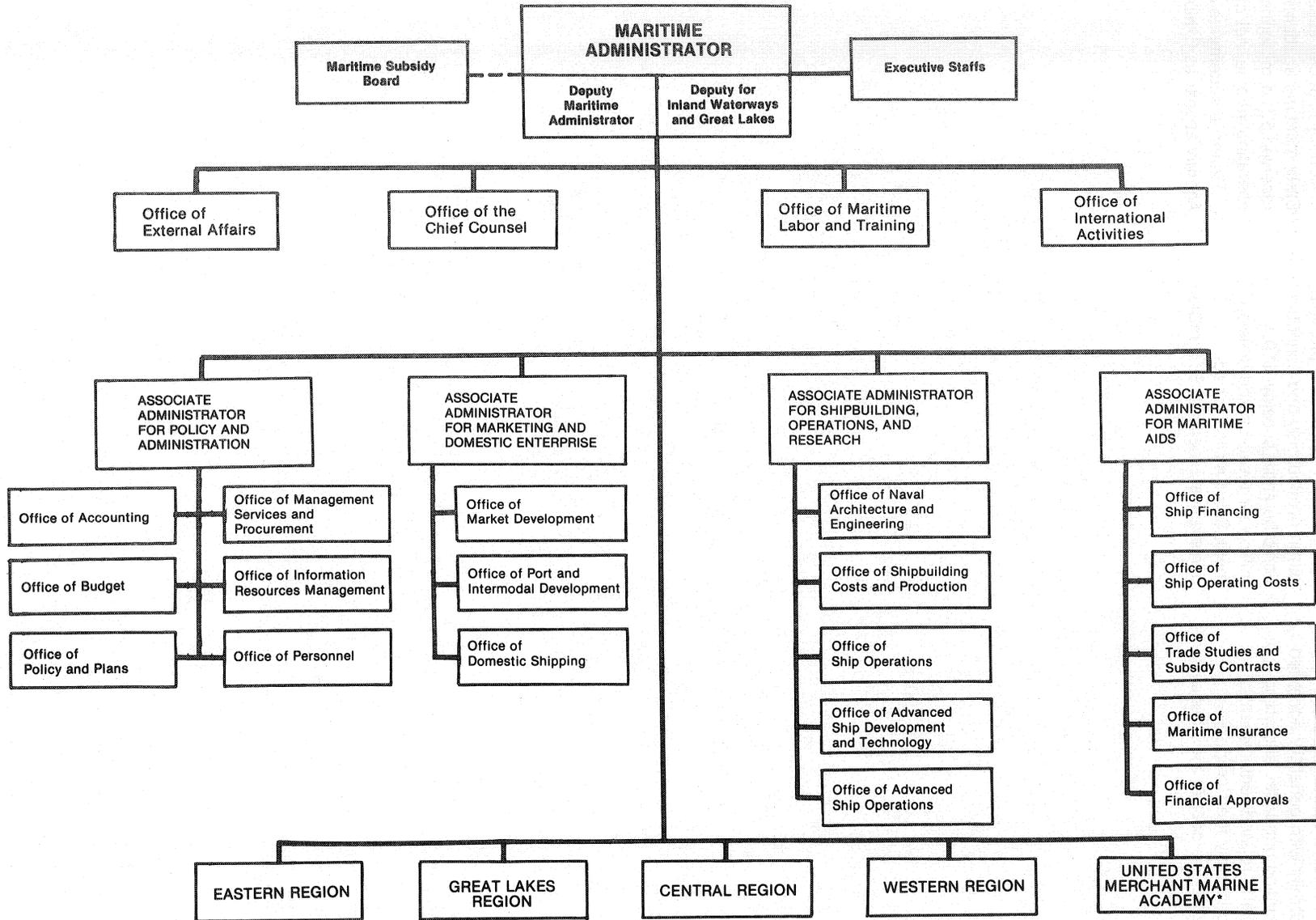
MARAD's accounts are maintained on an accrual basis in conformity with generally accepted accounting principles and standards, and related requirements prescribed by the Comptroller General. The cost of the Agency's

combined operations for the fiscal year totaled \$402 million. This included \$360.1 million for operating-differential subsidy and construction-differential subsidy, \$19.1 million for research and development, \$25.4 million for administrative expenses, \$9.2 million

for maintenance and preservation of reserve fleet vessels, and \$9.3 million for financial assistance to State maritime academies. MARAD received \$21.1 million in other operating income, net of expenses.

Financial statements of the Agency appear as Exhibits 1 and 2.

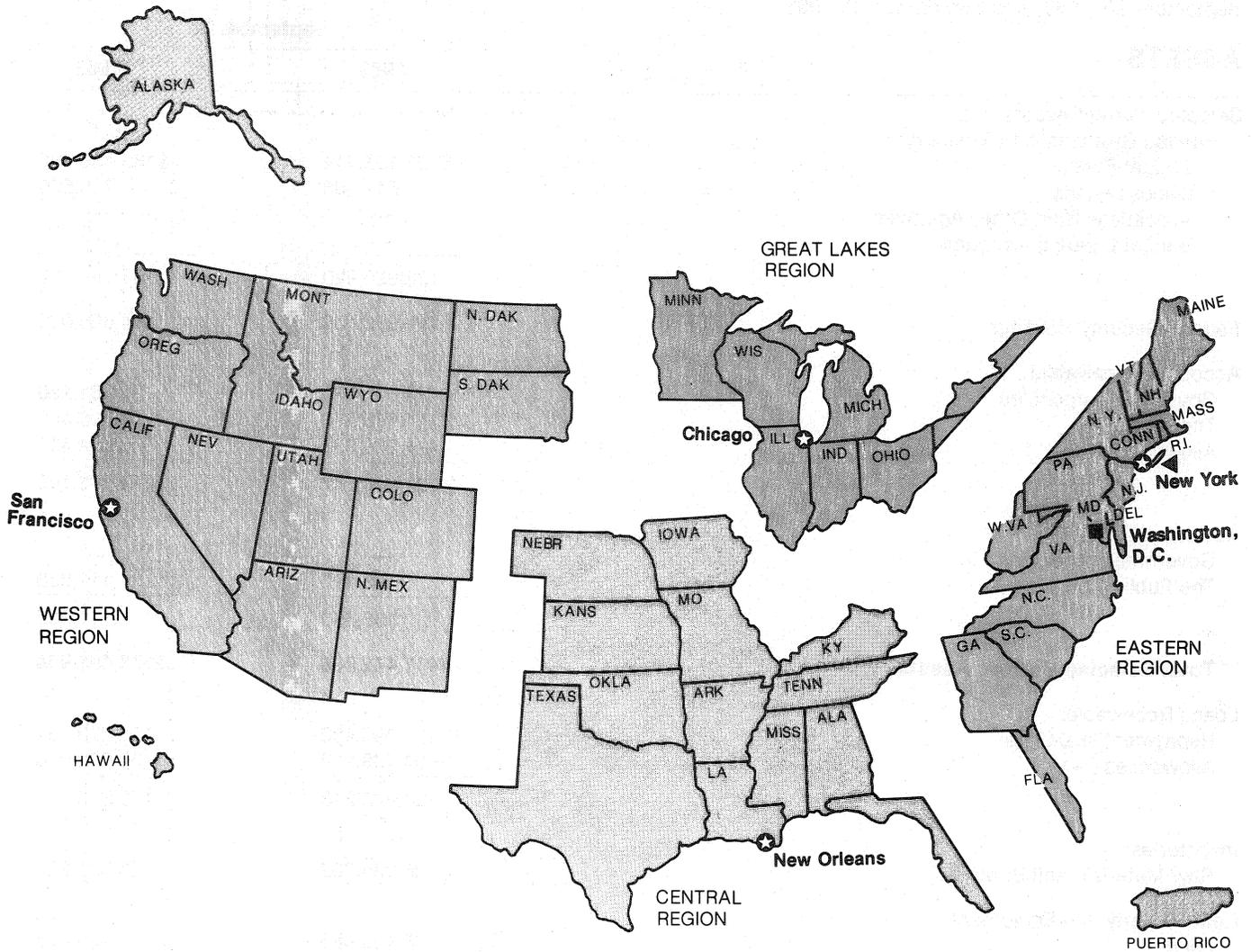
MARITIME ADMINISTRATION



* Kings Point, N.Y.

Maritime Administration

Field Organization



- MarAd Headquarters
- ★ Region Headquarters
- ▲ U.S. Merchant Marine Academy
Kings Point, N.Y.

FINANCIAL STATEMENTS

U.S. Department of Transportation—Maritime Administration

Exhibit 1. Statement of Financial Condition

September 30, 1982, and September 30, 1983

ASSETS	September 30	
	1983	1982
Selected Current Assets		
Funded Balances with Treasury:		
Budget Funds	\$198,103,414	\$160,485,482
Deposit Funds	517,506	705,520
Allocations from Other Agencies	—	—
Budget Clearing Accounts	—	—
	<u>198,620,920</u>	<u>161,191,002</u>
Federal Security Holdings	181,672,109	194,605,000
Accounts Receivable:		
Government Agencies	23,675,730	20,061,120
The Public	11,576,570	6,506,466
Allowances (—)	<u>- 4,208,033</u>	<u>- 3,994,484</u>
	31,044,267	22,573,102
Advances To:		
Government Agencies	—	—
The Public	<u>105,690</u>	<u>111,830</u>
	105,690	111,830
Total Selected Current Assets	\$411,442,986	\$378,483,934
Loans Receivable:		
Repayment in Dollars	221,996,430	158,273,131
Allowances (—)	<u>- 54,168,112</u>	<u>- 50,000,000</u>
	167,828,318	108,273,131
Inventories:		
Raw Materials and Supplies	26,235,782	25,391,237
Real Property and Equipment:		
Land	6,400,488	6,400,488
Structures and Facilities	40,106,333	40,106,333
Equipment and Vessels	1,232,750,344	1,211,089,963
Leasehold Improvements	92,119	92,119
Allowances (—)	<u>- 1,164,379,670</u>	<u>- 1,147,257,021</u>
	114,969,614	110,431,882
Other Assets:		
Works-in-Process—Other	18,969,472	16,927,329
Material and Supplies	827,049	887,973
Non-Current Assets	11,903,395	15,782,733
Notes Receivable	28,816,438	27,478,838
Allowances (—)	—	—
	<u>60,518,354</u>	<u>61,076,873</u>
Total Assets	<u>\$780,995,054</u>	<u>\$683,657,057</u>

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

FINANCIAL STATEMENTS

U.S. Department of Transportation—Maritime Administration

LIABILITIES	September 30	
	1983	1982
Selected Current Liabilities (Note 2)		
Accounts Payable (Including Funded Accrued Liabilities):		
Government Agencies	\$ 4,152,370	\$ 7,306,659
The Public	61,248,647	119,232,030
	<u>65,401,017</u>	<u>126,538,689</u>
Advances Form:		
Government Agencies	—	—
The Public	25,543,816	22,187,196
	<u>25,543,816</u>	<u>22,187,196</u>
Total Selected Current Liabilities	\$ 90,944,833	\$148,725,885
Deposit Fund Liabilities	517,506	705,520
Unfunded Liabilities:		
Accrued Annual Leave	2,973,427	2,949,157
Other Liabilities:		
Vessel Trade-In Allowance and Other Accrued Liabilities	14,579,472	63,420,949
Total Liabilities	\$109,015,238	\$215,801,511
Government Equity		
Unexpended Budget Authority:		
Unobligated	209,366,138	219,282,803
Undelivered Orders	65,954,258	116,834,763
	<u>275,320,396</u>	<u>336,117,566</u>
Unfinanced Budget Authority (—):		
Unfilled Customer Orders	—9,314,016	—7,192,280
Contract Authority	53,974,267	—90,122,269
	<u>44,660,251</u>	<u>—97,314,549</u>
Invested Capital	351,999,169	238,803,017
Total Government Equity	\$671,979,816	\$467,855,546
Total Liabilities and Government Equity	\$780,995,054	\$683,657,057

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

FINANCIAL STATEMENTS

U.S. Department of Transportation—Maritime Administration

Exhibit 2. Statement of Operations

For Years Ended September 30, 1982, and September 30, 1983

	Years Ended September 30	
	1983	1982
OPERATIONS OF THE MARITIME ADMINISTRATION:		
Net Costs of Operating Activities		
Reserve Fleet Programs:		
Depreciation on Vessels	\$ 403,519	\$ 368,038
Maintenance and Preservation	8,801,333	14,894,010
	9,204,852	15,262,048
Maritime Training Program	18,772,553	16,431,505
Maintenance of Shipyard and Warehouse	11,784	9,759
Direct Subsidies and National Defense Costs:		
Operating-Differential	309,913,463	358,049,306
Construction-Differential	50,210,984	144,748,676
Costs of National Defense Features	23,285	3,368,064
	360,147,732	506,166,046
Administrative	25,415,536	18,388,907
Research and Development	19,110,464	19,720,232
Financial Assistance to State Marine Schools	9,381,273	12,359,400
	53,907,273	50,468,539
Other Costs (Net of Income):		
Income on Sale of Obsolete Vessels	- 92,429	- 2,114,150
Loss on Sale of Other Assets	- 405,189	1,039,774
Inventory and Property Adjustments	- 818,400	- 37,822
Interest Income	—	—
Miscellaneous (Net)	8,362,302	- 2,598,476
	- 7,046,284	- 3,710,674
Net Cost of Maritime Administration	\$449,090,478	\$584,627,223
OPERATIONS OF REVOLVING FUNDS (- Income):		
Vessel Operations Revolving Fund	\$ - 4,258,874	\$ 5,310,346
War-Risk Revolving Fund	- 838,918	- 913,432
Federal Ship Financing Fund, Revolving Fund	- 41,966,353	- 62,795,689
Net Cost of Combined Operations	\$402,026,333	\$526,228,448

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

U.S. Department of Transportation—Maritime Administration

Notes to Financial Statements—September 30, 1983, and September 30, 1982

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

2. The Maritime Administration was contingently liable under agreements insuring mortgages and construction loans payable to lending institutions totaling \$7,841,458,886 on September 30, 1983, and

\$7,097,616,308 on September 30, 1982. Commitments to insure additional loans and/or mortgages amounted to \$521,573,165 on September 30, 1983, and \$1,040,945,527 on September 30, 1982. U.S. Government Securities and cash of \$67,409,850 on September 30, 1983, and \$182,438,797 on September 30, 1982, were held in escrow by the Government in connection with insurance of loans and mortgages which were financed by the sale of bonds to the general public. There were no condi-

tional liabilities for prelaunching War-Risk Builder's Risk Insurance on September 30, 1983.

3. On September 30, 1983, the U.S. Treasury held in safekeeping for the Maritime Administration \$180,000 of U.S. Government Securities which had been accepted from vessels, charters, subsidized operators, and other contractors as collateral for their performance under contracts. On September 30, 1982, the amount was \$180,000.

Appendix I: MARITIME SUBSIDY OUTLAYS—1936–1983

Fiscal Year	CDS	Reconstruction Subsidy	Total	ODS	Total ODS & CDS
1936–1955	\$ 248,320,942 ¹	\$ 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 ²	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	196,446,214	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	76,941,138	7,519,881	84,511,019	368,194,331	452,705,350
Total	\$3,550,021,192	\$264,904,682	\$3,814,925,874	\$6,927,759,566	\$10,742,685,440

¹ 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 years 1954 to 1955.

² Includes totals for FY 1976 and the Transition Quarter ending September 30, 1976.

Appendix II: COMBINED CONDENSED FINANCIAL STATEMENTS OF COMPANIES WITH OPERATING-DIFFERENTIAL SUBSIDY CONTRACTS

Statement A—Combined Condensed Balance Sheets as of December 31, 1982¹ and 1981² (Amounts Stated in Thousands of Dollars)

ASSETS	1982	1981
Current Assets:		
Cash	\$ 45,810	\$ 21,053
Marketable Securities	90,998	62,967
Accounts Receivable	435,762	424,959
Other Current Assets	50,605	111,015
Total Current Assets	\$ 623,175	\$ 619,994
Special Funds and Deposits	233,534	257,485
Investments	50,094	37,981
Property and Equipment Less Depreciation:		
Vessels	1,668,983	1,504,722
Other Property and Equipment	494,571	502,487
Other Assets	103,660	91,298
TOTAL ASSETS	\$3,174,017	\$3,013,967
LIABILITIES AND STOCKHOLDERS' EQUITY		
Liabilities:		
Current Liabilities:		
Accounts and Notes Payable	\$ 249,338	\$ 292,367
Current Portion of Long-Term Debt	94,956	112,240
Other Current Liabilities	315,301	271,646
Total Current Liabilities	\$ 659,595	\$ 676,253
Voyages in Progress (Net)	38,349	77,322
Long-Term Debt	1,407,729	1,236,032
Other Liabilities	204,307	277,626
Total Liabilities	\$2,309,980	\$2,267,233
Stockholders' Equity:		
Capital Stock	97,633	98,076
Paid-in Capital	221,728	198,848
Retained Earnings	544,676	449,810
Total Stockholders' Equity	\$ 864,037	\$ 746,734
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	\$3,174,017	\$3,013,967

¹ Data from Forms MA-172 filed by 25 subsidized companies.

² Data from Forms MA-172 filed by 20 subsidized companies.

Appendix II: (Continued)

Statement B—Combined Condensed Income and Retained Earnings Statement for the Years Ending December 31, 1982, and 1981 (Amounts Stated in Thousands of Dollars)

	1982	1981
Shipping Operations:		
Revenue:		
Terminated Voyages	\$2,817,409	\$3,133,409
Other Shipping Operations	105,361	2,009
Total Revenue	<u>\$2,922,770</u>	<u>\$3,135,418</u>
Expenses:		
Vessel Expense	\$1,298,719	\$1,471,210
Operating-Differential Subsidy (ODS)	(339,560)	(352,498)
Voyage Expense	1,155,144	1,341,804
Total Vessel/Voyage Expense (Net of ODS)	<u>\$2,114,303</u>	<u>\$2,460,516</u>
Overhead	\$ 372,137	\$ 348,875
Depreciation and Amortization on Shipping Property and Equipment	117,218	128,498
Other Expenses	142,289	17,885
Total Expenses	<u>\$2,745,947</u>	<u>\$2,955,774</u>
Shipping Operations Gross Profit	\$ 176,823	\$ 179,644
Other Income	87,270	64,740
Other Deductions	(141,374)	(154,415)
Shipping Operations Net Profit	\$ 122,719	\$ 89,969
Non-Shipping Operations Net Profit (Loss)	—	(1,340)
Ordinary Income Before Income Taxes	\$ 122,719	\$ 88,629
Provision for Income Taxes	(23,144)	(18,744)
Ordinary Income After Income Taxes	\$ 99,575	\$ 69,885
Extraordinary Items Net of Income Taxes—Income (Expense)	58,456	1,344
NET INCOME	\$ 158,031	\$ 71,229
Retained Earnings Beginning of Year ¹	\$ 457,036	\$ 452,218
Changes:		
Dividends	(71,463)	(64,514)
Other	1,072	(9,123)
RETAINED EARNINGS END OF YEAR¹	\$ 544,676	\$ 449,810

¹ Difference between 1981 Retained Earnings ending balance and 1982 Retained Earnings beginning balance is due to change in participating companies.

Appendix III: RESEARCH AND DEVELOPMENT CONTRACTS AWARDED—FISCAL YEAR 1983

Project	Task	Vendor	Contract Number	Amount
Advanced Ship Development				
Shipbuilding Research:				
Assessment of the National Shipbuilding Program	To assess and evaluate the National Shipbuilding Program and provide a basis for future similar assessments.	National Science Foundation Washington, D.C.	400-39010	\$ 13,000
Analysis of Shipbuilding Productivity	To conduct an independent and objective analysis of the potential for improving productivity in the building of U.S. Navy ships.	National Academy of Sciences Washington, D.C.	3-30050	266,000
Shipbuilding Facilities*	To focus improvements in shipbuilding to gain widespread support and expanded implementation of the zone-by-zone construction process.	Avondale Shipyards New Orleans, La.	2-20024	531,848
Shipbuilding Industrial Engineering*	To develop current industrial engineering techniques for application in the shipbuilding industry to improve planning and scheduling of production.	Bath Iron Works Bath, Maine	0-01105	551,665
Shipbuilding Standards*	To continue the development of national shipbuilding standards for ship equipment and to develop standardized bid and response procedures.	Bath Iron Works Bath, Maine	0-01106	384,937
Shipbuilding Industry Analysis	To examine the structure of the supplier-industry relationship and its effect on shipbuilders' competitive positions by means of a general overview of eight categories of components and a limited case study of several specific categories.	Transportation System Center Cambridge, Mass.	400-39008 G.W.A.	50,000
Shipbuilding Flexible Manufacturing*	To investigate and develop robotic applications to specialized shipbuilding requirements and explore other potential automatic production capabilities.	Todd Pacific Shipyards Corp. San Pedro, Calif.	3-30028	560,000
Shipbuilding Education Program*	To develop multi-level educational requirements for ship production managers and train skilled employees to apply more efficient production techniques in U.S. shipyards.	University of Michigan Ann Arbor, Mich.	2-20022	410,000
Shipbuilding Design/Integration*	To employ methods and procedures to reduce the time for the design and construction of the vessel and delivery after contract award, and to prepare a manual that aids designers to incorporate zone construction methods.	Newport News Shipbuilding Newport News, Va.	2-20018	440,700

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Shipbuilding Surface Preparation and Coating*	To examine and develop methods of surface preparation and to analyze the economics of shipyard painting to facilitate application of new procedures that improve the present methods of steel preparation.	Avondale Shipyards Inc. New Orleans, La.	1-10011	\$325,000
Welding Improvement Program*	To develop and improve welding equipment currently employed in U.S. shipyards.	Newport News Shipbuilding Newport News, Va.	0-01041	455,000
Shipbuilding Production Aids*	To develop shipbuilding scheduling techniques to monitor work-hours, productivity and progress during the implementation of zone outfitting methods.	Todd-Pacific Shipyard Corp. San Pedro, Calif.	0-01107	350,000
Research and Engineering for Automation and Productivity in Shipbuilding*	To provide advanced planning, information services, research and development support, technical support, and research projects for improving productivity of the U.S. shipbuilding industry.	Institute for Research and Engineering for Automation and Productivity in Shipbuilding Chicago, Ill.	MAH-11009	659,000
Advanced Fleet Technology				
Ship's Machinery and Outfitting:				
Coal-in-water Slurry Fuels for Marine Power Plants*	To assess the constraints, benefits, and research requirements associated with the utilization of coal-in-water slurry fuels in marine power plants and various type vessels.	Brookhaven National Laboratory Upton, Long Island, N.Y.	400-39012	80,000
PETCOM At-Sea Test and Evaluation*	To demonstrate and evaluate the potential of PETCOM (petroleum coke-in-oil mixture) fuel for U.S.-flag steam propelled vessels operating on PETCOM fuel in commercial service.	Cities Service Research and Development Tulsa, Okla.	3-30048	480,000
Machinery Conditioning Monitoring Ferrography	To perform research on techniques for detecting ship's machinery wear to provide a basis for introducing flexible intervals between machinery overhauls and to reduce unscheduled machinery downtime.	Mara Time Service Centerport, N.Y.	3-30011	98,290
Fire Protection for Spontaneous Combustion of Coal in Cargo Holds	To determine the effectiveness and practicality of using a variety of atmospheric control techniques and equipment for reducing the hazards associated with spontaneous combustion of coal in cargo holds.	U.S. Coast Guard Research and Development Center New London, Conn.	400-39004	250,000

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Advanced Seals and Bearings	To crate and ship the Government-owned bearing and seal test rig to the New York Maritime College for use in continuing research for industry and Government.	Mechanical Technology Latham, N.Y.	1-10039	\$ 17,000
Coal-Fired Steam Propulsion	To perform the design, development, and production engineering for a standardized 26,000 shaft horsepower (SHP) coal-fired propulsion system for bulk collier vessels of 80,000 to 180,000 deadweight tons (dwt.)	M. Rosenblatt & Sons, Inc. New York, N.Y.	2-20014	259,223
Planetary Transmission	To extend the storage agreement for the planetary transmission system for 12 months.	Curtiss-Wright Corp. Wood Ridge, N.J.	9-00096	18,400

Advanced Ship Operations

Fleet Management Technology:

Advanced Communication Technology*	To develop, advanced fleet technology and evaluate an automated carrier interface system and a vessel monitoring system to demonstrate advanced communication technology for the military and U.S. shipping industry.	Council of American Flag Ship Operators Washington, D.C.	MAH-11001	617,853
Computer-Aided Training of Deck Officers*	To evaluate the effectiveness of interactive videotape simulation of waterway pilotage training as a substitute for on-board observation time to qualify candidate pilots.	Cleveland-Cliffs Iron Co. Cleveland, Ohio	3-30005	47,810
Market Analysis and Planning System for Inland River Barge and Towing*	To develop a market analysis and process for strategic planning to meet the needs of the inland river barge and towing industry.	Dravo Mechling Pittsburgh, Pa.	3-30063	135,000
Automated System Planning for Liner and Bulk Ship Operators*	To develop a microcomputer-based market forecasting system to improve strategic planning for the liner segment of the industry.	Temple, Barker and Sloane Lexington, Mass.	3-30064	199,995
Research and Development Support in Fleet Management Technology*	To bring together the inland waterways operators to plan, direct, and conduct research and development activities to overcome common problems through mutual acceptance of solutions.	Illinois Institute for Research Technology Chicago, Ill.	3-30065	43,843
Planning and Vessel Performance System*	To develop an operations planning system to combine vessel performance data with key objectives using an on-board microprocessor to develop vessel control instructions.	Ingram Barge Line Nashville, Tenn.	2-30066	140,000

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Heat Balance Program for Marine Turbine Power Plants*	To develop a versatile micro-computer-based, part-power, heat balance program in order to evaluate the efficiencies of slow steaming, determine fuel savings, and evaluate machinery performance.	Seaworthy Engine Systems, Inc. Essex, Conn.	3-30067	\$135,000
Noise Control Aboard Small Vessels*	To design and develop guidance and recommendations for builders and operators of small vessels to reduce noise affecting crew members during operations.	Offshore Marine Service Association New Orleans, La.	X-31001	93,537
Cargo Handling:				
Cargo Handling Cooperative Program	To increase cargo systems productivity of U.S.-flag carriers, reduce costs, and increase revenue through improved systems for transport of specialty type cargo.	Advanced Technology, Inc. Arlington, Va.	3-30023	535,582
Cargo Handling Cooperative Program*	To provide support and research services for the development of a Cooperative Cargo Handling Program.	Advanced Technology, Inc. Arlington, Va.	0-01049	39,446
SEA SHED Test and Evaluation	To examine methods and programs for the integration of SEA SHED into national sealift programs.	Information Spectrum, Inc. Cherry Hill, N.J.	0-01091	256,537
SEA SHED Test and Evaluation	To conduct military tests of the SEA SHED system.	Department of the Army Washington, D.C.	400-39002	125,000
Commercial Test of SEA SHED*	To conduct commercial tests of the SEA SHED system to determine marketing, operating costs, and revenue data of cargoes suitable for SEA SHED.	Farrell Lines, Inc. New York, N.Y.	X-31004	550,000
Low Pressure System For Conveying Bulk Commodities	To evaluate new technologies in pneumatic conveying that utilize the low pressure system (LPS) and are capable of loading and unloading at dockside and transfer at mid-stream.	Marine Consultants and Designers, Inc. Cleveland, Ohio	3-30058	176,900
Ship Performance and Safety:				
Ship Performance Monitoring System	To conduct "at-sea" testing to develop proven technology that permits separation, identification, and quantification of speed/fuel losses in ship operations. The findings will permit improvements in design efficiency to achieve energy goals.	Erskine Systems Control, Inc. Champaign, Ill.	3-30041	172,270

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
International Trials of a Maritime Satellite Distress Notification System	To develop, test, and conduct trials of a satellite-aided maritime search and rescue system to provide a quick, reliable emergency alerting system for maritime vessels in distress.	Mitre Corp. McLean, Va.	78-3108	\$115,867
Maritime Navigation/ Communication Program	To examine technical and operational problems of vessels transiting the Great Lakes/ St. Lawrence Seaway to determine navigation/communication systems requirements which permit vessel movement during periods of poor visibility.	Transportation System Center Cambridge, Mass.	400-39008 G.W.A.	100,000
Marine Science:				
MARATECH Technology Transfer Journal	To provide for additions to the MARATECH mailing list.	Capital Systems Group, Inc. Kensington, Md.	2-20015	4,592
Design for Integrated Tug Barge	To design and test a new hull form based on recent research developments and to compare the results to conventional hull forms.	Webb Institute of Naval Architecture Glen Cove, N.Y.	P.O.3-2378	8,700
The Measurement of Ship Resistance from Simple Ship Trials	To improve the capability of measuring the resistance of a ship by using identification techniques recently developed to identify the maneuvering coefficients from full scale trials.	Massachusetts Institute of Technology Cambridge, Mass.	3-30003	49,900
Introduction of Welding Robots to Commercial Shipping	To conduct basic research necessary for the smooth and rapid introduction of welding robots into commercial shipbuilding.	Massachusetts Institute of Technology Cambridge, Mass.	3-30030	43,433
Technology Sharing	To improve productivity of the shipbuilding and operating industries through an active program of technology sharing.	Transportation System Center Cambridge, Mass.	400-39008 G.W.A.	50,000
Ship Structures Committee	To cost-share funding of the FY 1983 projects of the Ship Structures Committee.	U.S. Coast Guard Washington, D.C.	400-39001	125,000
Operational Assessment of Commercial Icebreaking Ships	MARAD's share of U.S. Coast Guard icebreaker support for FY 1983.	U.S. Coast Guard Washington, D.C.	400-39006	4,700,000
Phase V of Operational Assessment of Commercial Ice Breaking Ships*	To collect and analyze environmental data and ship performance data on ship operations in the Chuckchi seas.	Arctec, Inc., Columbia, Md.	1-10023	507,339

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Marine Coefficients Information System	To complete the development of an instrumentation package to permit full scale collection of ship maneuvering data.	Systems Technology, Inc. Palo Alto, Calif.	0-01092	\$ 62,006
University Research:				
Planning and Manpower Schedules for Mobilization Ship Construction	To prepare a comprehensive manpower and construction plan for the construction of mobilization ships in various U.S. shipyards.	University of Michigan Ann Arbor, Mich.	3-30031	49,530
Optimization Schemes for Rational, Computer-Aided Fleet Development	To develop and implement rational solutions to several deployment problems for a fleet of ships having specific operating costs and capacity as compared to speed characteristics of vessels deployed for a special service.	University of Michigan Ann Arbor, Mich.	3-30032	44,925
Increasing Minority and Female Employment in the U.S. Maritime Industry	To analyze the maritime industry in a rigorous, empirical fashion to identify barriers which account for near absence of minorities and women as managers and professional employees.	Morgan State University Baltimore, Md.	3-30033	49,948
Decision Support System for Port Planning and Management	To investigate the utility of a microcomputer-assisted information system in providing rapid interactive access to data required by MARAD for port planning.	State University of New York New York, N.Y.	3-30057	49,983
Design of Ducts to Reduce Propeller Cavitation and Vibration	To extend a procedure for the design of ducts developed and tested to reduce intermittent propeller blade cavitation.	Stevens Institute of Technology Hoboken, N.J.	3-30034	48,945
Potential Revenue Sources for Ports to Match Federal Maintenance Costs	To identify potential sources of revenue for ports to use in matching Federal maintenance.	University of Tennessee Knoxville and Memphis, Tenn.	3-30035	50,000
Liquid Sloshing	To conduct experimental investigation of the phase effect of liquid sloshing by using more practical tank geometrics and realistic ship motions as inputs for model testing.	Texas A&M College Station, Texas	3-30036	49,800
Development of Accuracy Control Computer Programs, Data Management, and CAD/CAM Interfaces	To develop user-friendly computer software to support an accuracy control system for the construction of vessels in U.S. shipyards.	Webb Institute of Naval Architecture Glen Cove, L.I. N.Y.	3-30038	35,976

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Advanced Ship Systems:				
Wood Pellet Fuel for Great Lakes Shipping	To quantify the market potential of wood chips as a fuel and bulk shipping opportunity in the Great Lakes Region.	University of Minnesota Duluth, Minn.	X-31005	\$ 26,540
Small Business Innovation Research (SBIR)	To finance MARAD's participation in the Department's SBIR program which strengthens the role of small, innovative research firms in developing a technological base of innovations to strengthen the Nation's economy.	Transportation Systems Center Cambridge, Mass.	400-39001	30,000
Research and Development Research Resource Support	To provide specialized support services to index, catalog, and process completed research and development reports.	Capital Systems Group, Inc. Kensington, Md.	3-2762	4,930
Panama Coal Gasification/Methanol Plant	To investigate innovative methods of moving coal in an integrated inland/ocean transportation system between the U.S. domestic waterway system and receiving terminals in eastern Panama.	EBASCO Services New York, N.Y.	X-31003	150,000
Marine Board CORE Programs	To continue support of the Marine Board CORE program.	National Academy of Sciences Washington, D.C.	2-20025	35,000
Marine Board	To continue support to participate in the funding of the Marine Board in FY 1983.	Office of Naval Research Arlington, Va.	400-39007	100,000
Marine Technology in a Changing World	To finance MARAD's share in support of the Society of Naval Architects and Marine Engineers STAR Symposium April 1983.	Society of Naval Architects and Marine Engineers New York, N.Y.	3-2454	2,000
Protective Coverings for Steel Propellers	To investigate and identify substitute materials, primers, and covering methods for steel propellers.	Daedalean Associates, Inc. Woodbine, Md.	7-38048	40,000

Research Facilities

Computer-Aided Research Facility (CAORF):

Engineering Maintenance and Technical Support*	To provide daily engineering maintenance support for MARAD's CAORF for the period October 1, 1982 through September 30, 1983.	Sperry Systems Management Great Neck, N.Y.	2-20003	1,410,852
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* Cost Shared

Appendix III: Continued

Projects	Task	Vendor	Contract Number	Amount
Panama Canal Commission Widening the Gaillard Cut	To provide technical support services for the CAORF simulator for the Panama Canal Commission study.	Sperry Systems Management Great Neck, N.Y.	2-20003	\$ 99,000
Engineering Maintenance and Technical Support	To provide technical support services for the phase-in period of the new Management and Operations contractor and to generate additional CAORF data bases for the period February 28, 1983 through April 30, 1984.	Sperry Systems Management Great Neck, N.Y.	2-20003	87,384
Management and Operations	To provide a cost and time extension for the Management and Operations of CAORF for the period October 1, 1982 through November 30, 1982.	Grumman Data Systems Bethpage, N.Y.	1-10041	140,622
Management and Operations	To provide management and operations expertise to the CAORF for the period March 1, 1983 through September 30, 1983.	Ship Analytics, Inc. Centerport, N.Y.	3-30002	315,488
Technical Research Experimenter*	To provide technical research experimentation for the CAORF facility for the period October 1, 1982 through September 10, 1983.	Ship Analytics, Inc. Centerport, N.Y.	2-20004	1,383,273
Pilot Training Criteria	To train maritime pilots on the CAORF simulator to enable the U.S. Coast Guard to define the role of simulators in a training program for certain classes of officers and to define marine pilot simulator training requirements.	Ship Analytics, Inc. Centerport, N.Y.	2-20051	175,000
Hydraulic Model Testing of Panamax Type Vessels	To conduct hydraulic analysis and model testing of the Panamax type vessels for MARAD's project related to widening the Gaillard Cut and Pacific Entrance Channel to the Panama Canal.	Swedish Maritime Research Center Goteberg, Sweden	3-30015	218,500
Administrative Support: Research Resource Center	To provide support services required to maintain a research resource study center and to provide qualified information specialist services to the public, the maritime industry, and MARAD offices.	Seatrack, Inc. Great Neck, N.Y.	C3-30023	115,659

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Agency Support				
Market Analysis:				
U.S.-Flag Crosstrading	To examine the impediments to existing and future potential of U.S.-flag crosstrading in international commerce and to develop alternative responses to meet the impediments within the framework of U.S.-flag shipping laws and policies.	Manalytics, Inc. San Francisco, Calif.	3-30045	\$140,528
Port and Intermodal:				
NORCAL Port Marketing Study*	To conduct a Northern California port marketing study to assist in identifying marketing areas the ports are able to pursue and to identify regional marketing programs to achieve the goals.	Northern California Port Terminal Bureau, Inc. Oakland, Calif.	3-30046	50,000
Port Risk Management Manual	To develop and provide a guidebook for the port industry's use as a reference on risk management techniques to handle common risk management problems and a source for management techniques to handle port risks.	The Wyatt Co. Washington, D.C.	3-30026	41,750
St. Bernard Port, Harbor, and Terminal Barge Fleeting*	To assess the benefits and examine potential problems in developing and implementing a Barge Management Fleeting Plan.	St. Bernard Port and Terminal District Chalmette, La.	X-31002	99,990
Port Economic Impact Kit	To design and revise the MARAD "Port Economic Impact Kit" for use by small and medium-sized ports and adapt the impact methodology for computer application.	Recht-Hausrath Associates Oakland, Calif.	3-30004	52,414
Classification Criteria to Dredged Material	To develop technical data required and produce a report on the disposal of dredged material from U.S. port areas.	American Association of Port Authorities Washington, D.C.	P.O.3-2241	7,500
New York/New Jersey Regional Port Study*	To assist in determining future requirements for port and waterfront land development, regional marketing studies, port capacities, and projected cargo flows.	Department of Port & Terminals City of New York New York, N.Y.	3-30001	97,000
Intermodal Port Planning	To develop a management information system and a trade data base to assist MARAD port staff with effective port planning.	Transportation System Center Cambridge, Mass.	400-39009 G.W.A.	50,000

* Cost Shared

Appendix IV: STUDIES AND REPORTS RELEASED IN FY 1983

The following major* studies or reports were released by the Maritime Administration during fiscal year 1983.

A limited number of copies of publications marked [MARAD] are available from the Office of Public Affairs, Maritime Administration. Publications marked [GPO] are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Those labelled [NTIS] may be purchased from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161.

MARAD 1982 (The Annual Report of the Maritime Administration for Fiscal Year 1982), 65pp [MARAD]

Containerized Cargo Statistics, prepared by the Maritime Administration, April 1983, 110 pp [MARAD]

Domestic Waterborne Trade of the United States, 1978-1980, prepared by the Maritime Administration, Office of Domestic Shipping, February 1983, 243pp \$9.50[GPO]

Maritime Subsidies, prepared by the Maritime Administration, March 1983, 169pp, \$8.50 [GPO]

Report on the Relative Cost of Shipbuilding—A Report to the Congress on the Relative Cost of Shipbuilding in the Various Coastal Districts of the United States, October 1983, prepared by Maritime Administration, 43pp [MARAD]

Atomization and Combustion of Petroleum Coke-Oil Mixtures (PETCOM) for Application to Marine Boilers, prepared by C-E Marine Power Systems 1983, 167pp PB83-188490, \$17.50 [NTIS]

Coal Fired Propulsion System Dynamics, prepared by General Dynamics Corp. 1983 [MARAD]

Volume I	Executive Summary PB83-163170	\$ 8.50
Volume II	Program Documentation and User's Guide PB83-163188	\$31.00
Volume III	Dynamic Analysis of the CV-3600 PB83-163196	\$55.00

Coal Slurry Tanker Movements of Western Coal to East Coast Utilities, prepared by the University of Arizona at Tucson, February 1983, 270pp PB83-183095, \$22.00 [NTIS]

A Guide to Strategic Planning for the U.S. Liner Industry, prepared by Temple, Barker & Sloane, Inc., 1983, PB83-194480, \$14.50 [NTIS]

Implications of World Coal Demand on U.S. Port Strategic Demand on U.S. Port Strategic Planning, prepared by Boston University, October 1983, 111pp PB84-117126, \$13.00 [NTIS]

Intermodal Equipment Maintenance and Repair Management System, prepared by Puerto Rico Maritime Shipping Authority and Temple, Barker and Sloane, Inc., 1982, [NTIS]

Volume 1	Executive Summary	PB83-183350	\$ 8.50
Volume 2	User's Guide	PB83-183368	\$13.00

Investigation of Direct Pulverized Coal Firing of Marine Boilers, prepared by Stock Equipment Co., 1983, 165pp PB83-183061, \$16.00 [NTIS]

National Defense Relevance of the World's Dry Cargo Contract Fleet, prepared by M. Rosenblatt & Son, Inc., 1982, 96pp PB82-240482, \$10.50 [NTIS]

Shipboard Fuel Handling and Treatment-Guidelines for On-board Conditioning, prepared by Seaworthy Engine, Inc., 1982, 172pp PB83-132720, \$17.50 [NTIS]

The Use of Self-Unloaders in U.S. Dry Bulk Commerce, prepared by COR, Inc., 1982, 370pp PB83-161331, \$29.50 [NTIS]

The U.S. Stevedoring and Marine Terminal Industry, prepared by the Maritime Administration, May 1983, 16pp [MARAD]

* Current reports and studies of the Maritime Administration are listed in *MARAD Publications*, which is available upon request from headquarters and field offices of this Agency.

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Acknowledgments

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