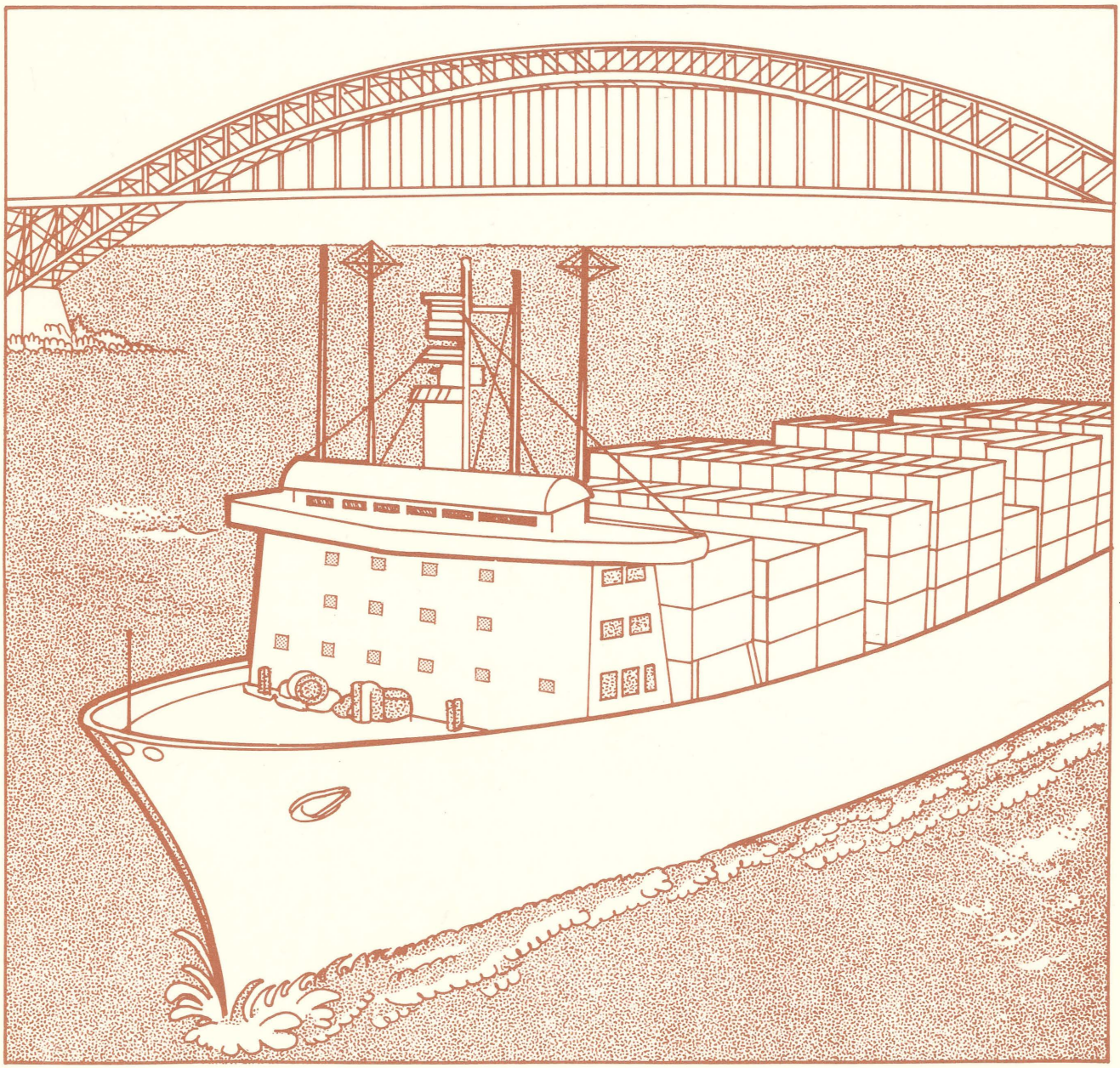
MARAD '84

U.S. Department
of Transportation

**Maritime
Administration**



The Annual Report of the Maritime Administration for Fiscal Year 1984 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

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 1984.

About the first two pictures in this report:

United States Lines' AMERICAN NEW YORK is one of 12 of the largest containerships ever built. This vessel and each of its sisterships has a carrying capacity of 2,120 40-foot containers. In the photo on page iv, the vessel is shown leaving the Port of Savannah, GA.

The FALCON CHAMPION (on page vi), built with the aid of government subsidy by Bath Iron Works Corp., Bath, ME, for Falcon II Sea Transport Co., and delivered in FY 1984, is shown on the building way.

MARAD '84

The Annual Report of the
Maritime Administration
for Fiscal Year 1984

U.S. DEPARTMENT OF TRANSPORTATION
Maritime Administration

JUNE 1985

CONTENTS

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

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

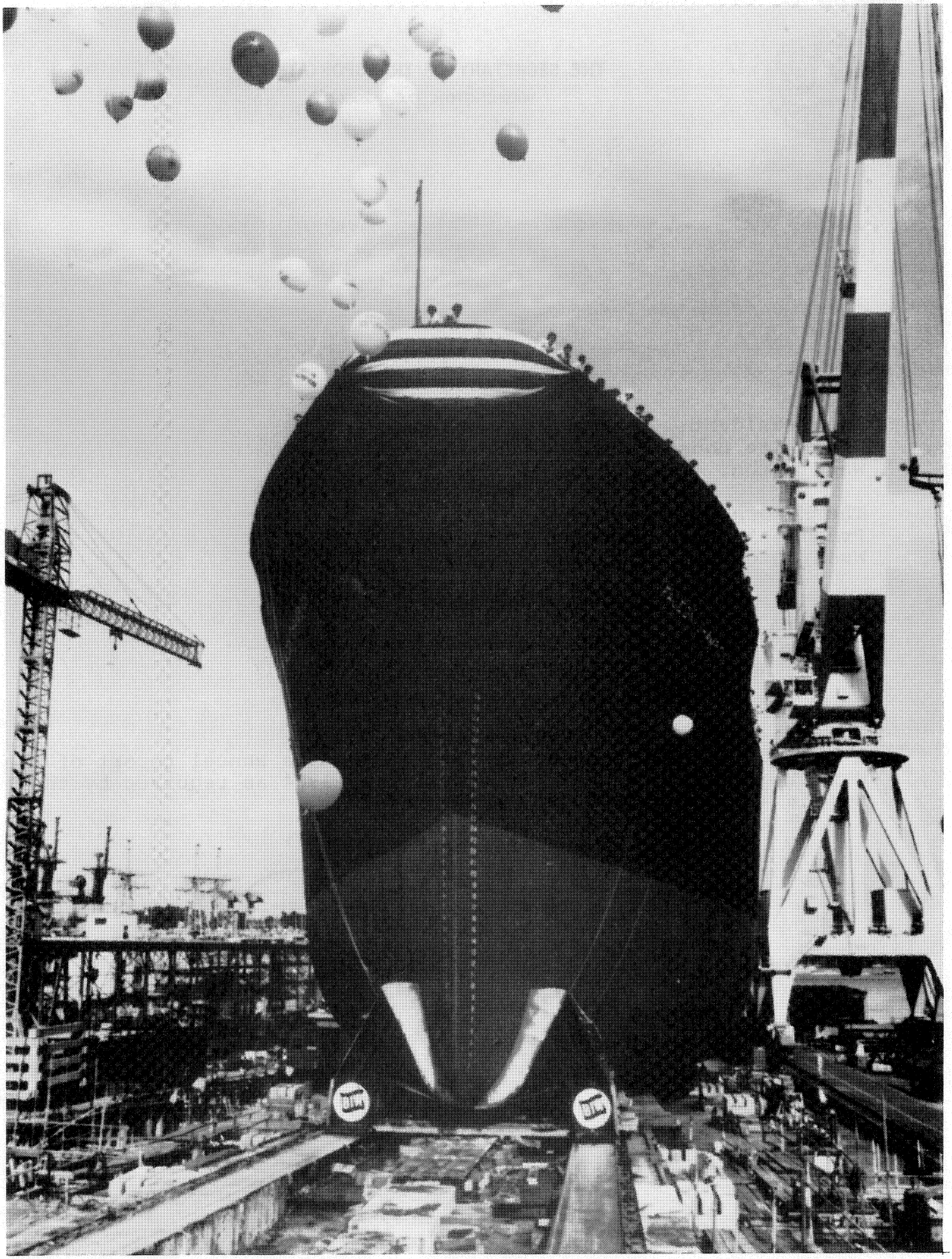
Dear Sirs:

I have the pleasure of forwarding to you the annual report of the Maritime Administration for fiscal year 1984 as required by the Merchant Marine Act, 1936, as amended.

Respectfully,

Elizabeth Dole

Elizabeth Hanford Dole



FOREWORD

The Annual Report of the Maritime Administration (MARAD) is submitted in accordance with the Merchant Marine Act, 1936, as amended, and incorporates certain other reports required by the Congress.

This report reviews the Agency's activities in administering Federal maritime programs and pertinent developments which affected the United States maritime industry in the fiscal year ending September 30, 1984. Among these developments were the following:

On March 20, 1984, President Reagan signed into law the Shipping Act of 1984. Its enactment climaxed seven years of effort by Government representatives, ship operators, and shippers to upgrade and streamline antiquated and vague regulations based on the Shipping Act of 1916, which governed ocean liner shipping engaged in the U.S. foreign trade. From the outset this Administration strongly supported these long-overdue reforms which, among other things, clarify antitrust provisions and remove regulatory and administrative burdens that have handicapped American carriers engaged in the liner trades.

During calendar year 1983, the U.S.-flag share of total tons of commercial cargo carried in our oceanborne foreign trade increased to 5.8 percent, compared to 4.6 percent a year earlier.

U.S. shipyards delivered eight commercial vessels and received orders for three commercial ships during this reporting period. Working closely with the U.S. Navy, MARAD oversaw the conversion of the first of a series of auxiliary crane ships which will enhance the military sealift capabilities of containerships. The Agency's National Defense Reserve Fleet continued to be upgraded by the enlargement of the Ready Reserve Force component comprising ships which can be reactivated in five to 10 days.

While the number of privately owned vessels in the U.S.-flag oceangoing fleet declined in FY 1984—due, in part, to an intensified scrapping program—the efficiency of the commercial fleet was increased by an infusion of highly productive ships acquired abroad under temporary or special authority provided by the Congress in 1981. During the year these additions included delivery to United States Lines of the first three of 12 vessels—the world's largest containerships—by a South Korean shipyard.

The build-abroad authority should be restored and continued indefinitely. It offers a cost-effective and expeditious way to increase the competitiveness of the U.S. merchant marine in peacetime trade and at the same time helps to ensure the ocean shipping capability required for national defense. The Administration will submit legislation to the Congress to achieve this objective.

H. E. SHEAR
Maritime Administrator

Chapter 1

Shipbuilding

During fiscal year 1984, U.S. shipyards delivered eight commercial vessels, one of which was the last built with the aid of construction-differential subsidy.

Major Contract Awards

During the fiscal year, private contracts were awarded to U.S. shipyards for the construction of three nonsubsidized commercial vessels totaling 423,200 deadweight tons (dwt.). The contracts were for one self-propelled oceangoing hopper dredge and two large crude oil tankers for the Alaska trade. (See Table 1.)

The Maritime Administration (MARAD) requested no construction-differential subsidy (CDS) funds and awarded no CDS contracts in FY 1984. However, the largest combatant ship construction and conversion program in the U.S. Navy's peacetime history was underway. In building toward a 600-ship fleet, the Navy committed $43.9 billion to this program in the four years ending September 30, 1984, with at least 40 percent of the funding going directly to the Nation's commercial shipyards.

As of September 30, 1984, in the U.S. Navy's T-Ship Program, 11 U.S. commercial shipyards had been awarded contracts totaling more than $3 billion for the construction of 22 new vessels and the major reconstruction of 23 existing merchant ships.

Ten of the 45 T-ships were completed in FY 1984.

Vessel types in this multibillion-dollar procurement program include maritime prepositioning ships, fast sealift ships, fleet oilers, ocean surveillance ships, hospital ships, crane ships, aviation logistics support ships, a cable repair ship, and a fleet ballistic missile resupply ship.

Ships in this program are mission oriented. Some are Government-owned and operated by the Military Sealift Command (MSC) civil service crews, and some are privately owned and chartered to the MSC with union crews.

Vessels on Order

At the end of FY 1984, 10 deep-draft commercial vessels totaling 585,600 dwt. and valued at $638.7 million were under construction or on order in American shipyards. (See Table 2.) Three of the 10 are participating in the Federal Ship Financing Guarantee (Title XI) Program.

In addition, five offshore oil-drilling rigs were under construction or on order at the end of the period.

Ship Deliveries

Eight new deep-draft commercial vessels totaling 243,180 dwt. were delivered by American shipyards in FY 1984. (See Table 3.)

Only one of these vessels was built with subsidy—the 34,000-dwt. product tanker FALCON CHAMPION, built by Bath Iron Works Corp. for Falcon II Sea Transport Co. for charter to the MSC. This tanker brought to 80 the number of subsidized vessels contracted for and delivered since enactment of the Merchant Marine Act of 1970.

The other vessels delivered in FY 1984 were:

- Two 47,000-dwt. oceangoing tug/barge vessels, PHILADELPHIA and MOBILE, built by Bethlehem Steel Corp. at Sparrows Point, Md. for Amerada Hess Corp. for the carriage of petroleum products in the U.S. domestic trade (Halter Marine, Inc., built the tugs under a subcontract);
- Two 43,000-dwt. product tankers, EXXON CHARLESTON and EXXON WILMINGTON, delivered by Avondale Shipyards to Exxon Co., USA for U.S. coastal service;
- The 58,300-dwt. crude oil tanker EXXON BAYTOWN, delivered by Avondale Shipyards to Exxon Co., USA for the Alaska trade;
- The seismographic research ship SHELL AMERICA, built by Marinette Marine Corp. for Shell Offshore, Inc.; and
- The diesel-propelled, oceangoing hopper dredge NORTHERLY ISLAND, built by Southern Shipbuilding Corp. for North American Trailing Co.

Table 4 shows merchant ship deliveries by major shipbuilding nations during calendar year 1983.

Section 615 Approvals

A provision of the Omnibus Budget Reconciliation Act of 1981 added section 615 to the Merchant Marine Act of 1936, temporarily authorizing ship operators receiving or applying for operating-differential subsidy (ODS) to construct, reconstruct, or acquire vessels in foreign shipyards under certain circumstances.

Under the law, an operator was required to receive written certification from the Secretary of Transportation that its CDS application could not be approved due to the unavailability of funds in the CDS account.

Under this authority, which expired on September 30, 1982, MARAD conditionally granted permission to 18 companies to construct and/or acquire up to 34 vessels and reconstruct a total of 14 vessels in foreign shipyards. As of September 30, 1984, work had been completed on 7 new vessels and the reconstruction of 11 vessels, pursuant to section 615.

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

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

The U.S. Government 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.

Table 1: MAJOR PRIVATE SHIP CONSTRUCTION CONTRACTS AWARDED IN FY 1984

Owner	Shipbuilder	Type	No. Vessels	Total Deadweight Tons	Est. Completion Date	Total Est. Cost (Millions)
Exxon Shipping Co.	NASSCO	Tanker	2	418,400	2/87	$250.0
Gulf Coast Trailing Co.	Twin City Shipyard	Dredge	1	4,800	10/85	25.5
Total Private Contracts—FY 1984			**3**	**423,200**		**$275.5**

Title XI guarantees of approximately $177 million covering 288 vessels, including 246 shipboard barges, were approved in principle by MARAD during FY 1984. (See Table 5.)

Based on previous Title XI commitments, MARAD issued security agreements covering a total of 113 vessels during this reporting period.

As of September 30, 1984, Title XI guarantees in force amounted to approximately $7.3 billion. Active pending applications on that date represented approximately $208 million in requests for additional guarantees. (See Table 6.)

During FY 1984, Congressional authority for the Title XI program had a cap of $12 billion, with $9.5 billion allocated to MARAD, $1.65 billion reserved for 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.

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. During this reporting period, MARAD paid $101.3 million as a result of nine defaults involving a total of 364 vessels, including 325 shipboard lighters and 39 other vessels.

During FY 1984, the Federal Ship Financing Fund had a net income of $27,386,592. The year-end balance (cash and investments) was approximately $149 million.

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 calendar year 1983, $416 million was deposited in these accounts. Since the program was initiated in 1971, fund holders (shown in Table 7) have deposited $3.7 billion in CCF accounts and withdrawn $2.8 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

Table 2: COMMERCIAL SHIP CONSTRUCTION UNDER CONTRACT—SEPTEMBER 30, 1984

Owner	Shipbuilder	Ship Type[1]	No. of Ships	Total Deadweight Tons	Est. Completion Date	Est. Cost (Millions)	Government Participation[2]
New Construction:							
Apollo Company	Tacoma Boatbuilding	I	2	12,400	8/85	74.6	MG
Ocean Carriers, Inc.	Tampa Shipyards	PT	5	150,000	2/86	288.6	[3]
Exxon Shipping Co.	National Steel	COT	2	418,400	2/87	250.0	None
Gulf Coast Trailing Co.	Twin City Shipyard	D	1	4,800	10/85	25.5	MG
Total New Construction[4]			**10**	**585,600**		**$638.7**	

[1] COT = Crude Oil Tanker; D = Self-Propelled Dredge; I = Incinerator Ship; PT = Product Tanker.

[2] MG = Title XI mortgage guarantees.

[3] Military Sealift Command build and charter contract.

[4] Merchant vessels of 1,000 dwt. and over.

Table 3: NEW COMMERCIAL SHIPS DELIVERED FROM U.S. SHIPYARDS DURING FY 1984

Owner	Builder	Vessel Type	Vessels
Subsidized			
Falcon II Sea Transport Co.	Bath Iron Works	Product Tanker	1
	Total Subsidized Deliveries		**1**
Nonsubsidized			
Amerada Hess Corp.	Beth-Sparrows Point/Halter	Integrated/Tug Barge	2
Exxon Co., USA	Avondale Shipyards	Product Tanker	2
Exxon Co., USA	Avondale Shipyards	Crude Oil Tanker	1
Shell Offshore, Inc.	Marinette Marine	Research Ship	1
North American Trailing Co.	Southern Shipbuilding	Self-Propelled Dredge	1
	Total Nonsubsidized Deliveries		**7**
Total New Commercial Ships Delivered FY 1984			**8**

Table 4: WORLDWIDE SHIP DELIVERIES—CALENDAR YEAR 1983 (TONNAGE IN THOUSANDS)

Country of Construction	Total All Types No.	Total All Types Deadweight Tons	Combination Pass. & Cargo No.	Combination Pass. & Cargo Deadweight Tons	Freighters No.	Freighters Deadweight Tons	Bulk Carriers No.	Bulk Carriers Deadweight Tons	Tankers No.	Tankers Deadweight Tons
Total	**654**	**18,282.6**	**2**	**5.4**	**301**	**3,355.1**	**205**	**9,615.6**	**146**	**5,306.5**
United States	12	552.3	—	—	4	127.8	2	164.0	6	260.5
Brazil	14	359.8	—	—	9	91.7	4	181.1	1	87.0
Denmark	22	647.9	—	—	14	93.2	4	323.9	4	230.8
Finland	7	56.8	1	1.2	1	12.8	—	—	5	42.8
France	10	249.8	1	4.2	1	13.7	—	—	8	231.9
Germany (Fed. Republic)	48	802.8	—	—	34	405.9	9	351.6	5	45.3
Italy	12	366.2	—	—	1	7.9	3	227.9	8	130.4
Japan	303	8,133.4	—	—	129	1,274.7	116	5,133.0	58	1,725.7
Korea (Republic of)	44	1,913.7	—	—	12	306.3	23	1,365.0	9	242.4
People's Republic of China	14	247.7	—	—	6	54.4	6	183.5	2	9.8
Poland	9	322.8	—	—	5	86.5	1	32.9	3	203.4
Spain	25	495.9	—	—	17	114.9	6	330.2	2	50.8
Sweden	10	478.5	—	—	5	164.1	3	156.4	2	158.0
Taiwan	9	346.9	—	—	7	194.0	—	—	2	152.9
U.S.S.R.	6	30.7	—	—	4	23.0	1	2.8	1	4.9
United Kingdom	14	711.1	—	—	—	—	11	352.2	3	358.9
Yugoslavia	9	300.4	—	—	2	26.4	—	—	7	274.0
All Others	86	2,265.9	—	—	50	357.8	16	811.1	20	1,097.0

Table 5: SHIP FINANCING GUARANTEES—COMMITMENTS APPROVED IN FY 1984

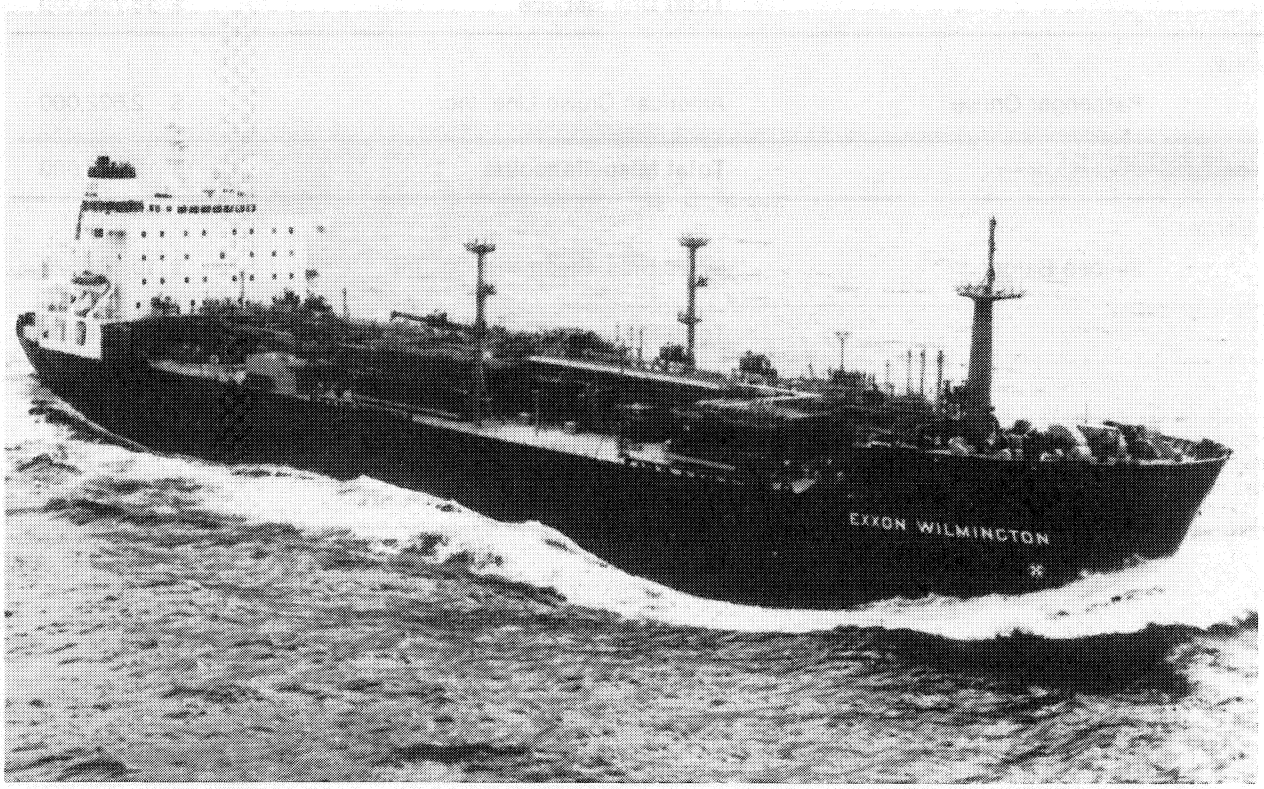
Number	Type of Vessel	Company	Amount Guaranteed[1]
Deepdraft Vessels:			
1[2]	Tanker	Falcon Tankers, Inc.	$ 2,750,000
1	RO/RO	Acadian Shipping Corp.	33,451,000
1[2]	Tanker	Allied Towing Corp.	1,398,000
15[3]	Cargo	Lykes Bros. Steamship Co., Inc.	51,091,480
1		**Total Deepdraft Vessels**	**$ 88,690,480**
Other Types:			
Ocean:			
2	Tugs	Marine Logistics Corp.	$ 3,197,300
2	Tugs	Puget Sound Tug & Barge Co., Inc.	3,807,000
2	Tugs	Matson Navigation Co.	10,575,000
4	Tugs	Sonat Marine Inc.	10,152,000
4	Barges	Sonat Marine Inc.	24,848,000
14		**Total Ocean**	**$ 52,579,300**
River:			
1	Towboat	Mystic Marine Towing Partners/Series II	$ 4,110,000
1		**Total River**	**$ 4,110,000**
Drill Service:			
2	Tug/Supply	National Fleet Corp.	$ 5,961,000
6	Supply	National Fleet Corp.	$ 12,827,000
8		**Total Drill Service**	**$ 18,788,000**
Miscellaneous:			
1	Passenger Cruise	American Cruise Line, Inc.	$ 2,622,000
1		**Total Miscellaneous:**	**$ 2,622,000**
Shipboard Barges:			
246[3]	Seabee Barges	Lykes Bros. Steamship Co., Inc.	$ 10,464,520
246		**Total Shipboard Barges**	**$ 10,464,520**
25		**Total Vessels**	**$177,254,300**

[1] Some numbers have been rounded to nearest dollar.
[2] Not included in ship count; involved second mortgage.
[3] Not included in ship count; vessels used as collateral for debt refinancing.

Table 6: FEDERAL SHIP FINANCING GUARANTEE (TITLE XI) PROGRAM SUMMARY
(Statutory Limit $9.5 Billion) Principal Liability on September 30, 1984

Vessel Types	Contracts in Force		Active Applications	
	Vessels Covered	Principal Amount*	Vessels Covered	Principal Amount*
Deepdraft Vessels:				
Tankers	81	$1,903,314,358	1	$ 3,200,000
Cargo	126	1,042,007,884	4	12,800,000
LNGs	16	1,181,552,000	1	11,300,000
Bulk/OBOs	22	377,521,286	0	0
Cruise ship			1	99,000,000
Total	**245**	**$4,504,395,528**	**7**	**$126,300,000**
Other Types:				
Drill Rigs/Ships	78	$ 868,504,269		$
Tugs/Barges/Drill Service	3,713	1,661,084,297	62	18,000,000
Miscellaneous	24	224,553,703	6	63,800,000
Total	**3,815**	**$2,754,142,269**	**68**	**$ 81,800,000**
Total Vessels	**4,060**	**$7,258,537,797**	**75**	**$208,100,000**
Shipboard Lighters	**1,975**	**$ 44,666,684**	**0**	**$ 0**
Total	**6,035**	**$7,303,204,481**	**75**	**$208,100,000**

* Rounded to the nearest dollar.



The EXXON WILMINGTON is one of three 43,000-deadweight-ton product tankers built by Avondale Shipyards, Inc., for Exxon Co., USA.

Table 7: CAPITAL CONSTRUCTION FUND HOLDERS—SEPTEMBER 30, 1984

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

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.

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 1984. (See Table 8.) Total deposits decreased from $10.1 million to $6.6 million in FY 1984.

Crane And School Ships

During FY 1984, MARAD completed the conversion of the first auxiliary crane ship (T-ACS-1) for the Navy. The SS KEYSTONE STATE, formerly the containership PRESIDENT HARRISON, was delivered to the Navy on time and under budget. (See also Chapter 8.)

The work, including the installation of three sets of large marine twin cranes, was performed at Bay Shipbuilding Corp., Sturgeon, Bay, WI.

In FY '84 MARAD also contracted for conversion of T-ACS-2 with Continental Maritime of San Francisco, Inc. The planned completion date for this second auxiliary crane ship is September 1985. Conversion of T-ACS-3 is to be contracted in FY 1985. Both T-ACS-2 and T-ACS-3 will be converted from sister ships of T-ACS-1.

In January 1984, the Agency purchased the passenger-cargo ship SANTA MERCEDES, reactivated the vessel's machinery to operational condition, prepared the design to convert the ship for training 600 cadets of the Massachusetts Maritime Academy, and in September 1984 issued an Invitation for Bids for conversion. (See also Chapter 7.)

Shipyard Improvements

During FY 1984, the American shipbuilding and ship repair industry invested $338.5 million in facilities modernization and expansion. Plans were underway to spend an additional $158.5 million in FY 1985, mainly for larger drydocks and support facilities to increase vessel conversion, overhaul, and repair capabilities.

Since enactment of the Merchant Marine Act of 1970, the U.S. shipbuilding and ship repair industry has invested approximately $3.4 billion in plant modernization and improvements.

Table 8: CONSTRUCTION RESERVE FUND HOLDERS—SEPTEMBER 30, 1984

Cargo Carriers, Inc.	Joan Turecamo, Inc.	Kurz Marine
Central Gulf Steamship, Inc.	Ingram Industries, Inc.	Lee-Vac, Ltd.
Gulf Fleet Marine Corp.	Keystone Shipping Co.	Mobil Oil Corp.

Chapter 2

Ship Operations

U.S. Fleet Profile

At the end of fiscal year 1984, 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.).

The oceangoing segment of the fleet consisted of 501 vessels of 21.1 million dwt., of which 397 ships of 16.4 million dwt. were active. The latter comprised 49 breakbulk cargo ships, 116 intermodal vessels (containerships, barge-carrying vessels, and roll-on/roll-off vanships known as RO/ROs), 5 combination passenger-cargo ships, 205 tankers (including liquefied natural gas carriers), and 22 bulk carriers. (See Table 9.)

Of the 104 inactive vessels, 9 were temporarily inactive, either awaiting cargoes or undergoing repairs, and 95 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 September 30, 1984, 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 630 million tons in calendar year 1983. U.S.-flag tonnage increased from 31.1 million to 36.7 million tons and the U.S.-flag share of total tonnage increased to 5.8 percent compared to 4.6 percent in the previous year.

Commercial cargoes transported in U.S. oceanborne foreign trade from 1974 through calendar year 1983 are shown in Table 12. The table shows the portion carried by U.S.-flag vessels, by tonnage and value.

Operating-Differential Subsidy

Qualified U.S.-flag vessels which operate in essential foreign trades are eligible for operating-differential subsidy (ODS) which is administered by the Maritime Administration (MARAD). ODS is designed to offset certain lower ship operating costs of foreign-flag competitors. Net subsidy outlays during FY 1984 amounted to $384.3 million.

Subsidy of approximately $5.5 million was paid to one liner company for voyages in the Great Lakes trade in calendar year 1984.

President Ronald Reagan signing the Shipping Act of 1984 on March 20, 1984. This legislation clarified antitrust provisions and removed regulatory and administrative restraints from American carriers engaged in the liner trades.

Table 9: U.S. OCEANGOING MERCHANT MARINE—SEPTEMBER 30, 1984[1]

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:						
Passenger/Passenger-Cargo	5	43	4	32	9	75
General Cargo	49	731	5	32	54	763
Intermodal	116	2,671	0	0	116	2,671
Bulk Carriers	22	999	0	0	22	999
Tankers	205	11,930	2	21	207	11,951
Total Active Fleet	**397**	**16,374**	**11[3]**	**85**	**408**	**16,459**
Inactive Fleet:						
Passenger/Passenger-Cargo	1	6	24	187	25	193
General Cargo	20	251	194	2,174	214	2,425
Intermodal	29	545	5	83	34	628
Bulk Carriers	3	122	0	0	3	122
Tankers	51	3,823	14	315	65	4,138
Total Inactive Fleet	**104**	**4,747**	**237**	**2,759**	**341**	**7,506**
Total Active and Inactive:						
Passenger/Passenger-Cargo	6	49	28	219	34	268
General Cargo	69	982	199	2,206	268	3,188
Intermodal	145	3,216	5	83	150	3,299
Bulk Carriers	25	1,121	0	0	25	1,121
Tankers	256	15,753	16	336	272	16,089
Total American Flag	**501**	**21,121**	**248[4]**	**2,844**	**749**	**23,965**

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

[2] Bulk Carriers including tug barges; Tankers including tanker barges and liquefied natural gas carriers.

[3] Includes 6 vessels in custody of other agencies.

[4] Includes National Defense Reserve Fleet which consists of 228 ships, of which 8 are scrap candidates; 2 vessels are in bareboat charter.

NOTE: Tonnage figures may not add due to rounding.

ODS accruals and expenditures from January 1, 1937, through September 30, 1984, 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 1984.

At the end of this reporting period, 23 operators (8 liner and 15 bulk) held 25 ODS contracts with MARAD and operated 136 subsidized vessels. (See Table 15.)

On the same date, the nonsubsidized oceangoing fleet comprised 365 vessels and 191 companies, a majority of which operated only one ship each.

Total ODS and construction-differential subsidy outlays, 1936–1984, are shown in Appendix I.

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 1984 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 agreement 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. However, the vessel was reinstated in the subsidy contract on May 24, 1984.

Subsidy Rates

The Subsidy Index System was established by the Merchant Marine Act of 1970. It provides for payment to operators for differential subsidies regarding seafaring wages. 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.

In addition to the wage category, ODS rates are calculated on contract vessels for maintenance and repairs, hull and machinery insurance, and protection and indemnity insurance for both premiums and deductibles.

Table 10: EMPLOYMENT OF U.S.-FLAG OCEANGOING FLEET—SEPTEMBER 30, 1984[1]

			Vessel Type									
	Total		Passenger Pass./Cargo		General Cargo		Intermodal		Bulk Carriers[1]		Tankers	
Status and Area of Employment	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)
Grand Total	**749**	**23,965**	**34**	**268**	**268**	**3,188**	**150**	**3,299**	**25**	**1,121**	**272**	**16,089**
Active Vessels	**408**	**16,459**	**9**	**75**	**54**	**763**	**116**	**2,671**	**22**	**999**	**207**	**11,951**
Foreign Trade	140	4,320	3	29	33	503	74	1,924	6	435	24	1,429
Nearby Foreign[2]	3	55	—	—	—	—	2	18	—	—	1	37
Great Lakes-Seaway Foreign	—	—	—	—	—	—	—	—	—	—	—	—
Overseas Foreign	137	4,265	3	29	33	503	72	1,906	6	435	23	1,392
Foreign to Foreign	20	1,112	—	—	—	—	5	90	1	127	14	895
Domestic Trade	183	9,606	2	14	1	18	25	393	13	388	142	8,793
Coastwise	30	1,318	—	—	—	—	—	—	5	148	25	1,170
Intercoastal	76	3,024	—	—	—	—	—	—	6	184	70	2,840
Noncontiguous	77	5,264	2	14	1	18	25	393	2	56	47	4,783
Other U.S. Agency Operations	65	1,421	4	32	20	242	12	264	2	49	27	834
MSC Charter	54	1,336	—	—	15	210	12	264	2	49	25	813
B. B. Charter & Other Custody	11	85	4	32	5	32	—	—	—	—	2	21
Inactive Vessels	**341**	**7,506**	**25**	**193**	**214**	**2,425**	**34**	**628**	**3**	**122**	**65**	**4,138**
Temporarily Inactive	9	371	—	—	—	—	4	87	1	82	4	202
Laid-Up (Privately Owned)	91	4,266	1	6	18	227	23	372	2	40	47	3,621
Laid-Up (Privately Owned/NDRF)	4	110	—	—	2	24	2	86	—	—	—	—
Laid-Up (MARAD-Owned) Pending Disposition[3]	9	99	2	19	7	80	—	—	—	—	—	—
National Defense Reserve Fleet	228	2,660	22	168	187	2,094	5	83	—	—	14	315

[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] Nearby foreign trade includes Canada, Mexico, Central America, West Indies, and North Coast of South America.
[3] Other than vessels in the National Defense Reserve Fleet.

Table 11: MAJOR MERCHANT FLEETS OF THE WORLD—SEPTEMBER 30, 1984

Country	No. of Ships[1]	Rank by No. of Ships[2]	Deadweight Tons	Rank by Deadweight Tonnage
Liberia	2,019	4	131,545,000	1
Greece	2,454	3	68,612,000	2
Japan	1,712	5	61,191,000	3
Panama	3,290	1	57,781,000	4
Norway	529	11	32,470,000	5
United Kingdom	685	7	27,251,000	6
U.S.S.R.	2,497	2	23,157,000	7
United States (Privately Owned)	538	10	21,569,000	8
France	314	20	16,532,000	9
Italy	601	8	14,964,000	10
China (People's Republic of)	861	6	12,628,000	11
Singapore	556	9	11,634,000	12
Spain	511	12	10,765,000	13
Korea (Republic of)	499	13	10,585,000	14
British Collonies	309	21	10,200,000	15
All Others[3]	8,204		155,520,000	
Total	**25,579**		**666,404,000**	

[1] Oceangoing merchant ships of 1,000 gross tons and over.

[2] By number of ships, Cyprus ranked 14th with 480 vessels aggregating 8,110,000 dwt., and Netherlands ranked 15th with 448 vessels aggregating 7,040,000 dwt.

[3] Includes 250 United States Government-owned ships of 2,840,000 dwt.

MARAD is modifying its procedures for determining ODS so that final subsidy payments can be maintained on a current basis.

The Agency completed 1984 subsidy rates applicable to six liner companies and made final payments to those carriers for all ODS obligations through June 30, 1984. For the remaining subsidized operators, MARAD has substantially completed 1982 subsidy rate audits.

Passenger/Cruise Service

As of September 30, 1984, U.S.-flag oceangoing passenger service was provided by the cruise liners INDEPENDENCE and CONSTITUTION operated by American Hawaii Cruises, Inc., and by three passenger/cargo vessels operated by Delta Steamship Lines, Inc. The Delta ships—SSs SANTA MAGDALENA, SANTA MARIA, and SANTA MARIANA—could accommodate up to 100 passengers per voyage.

During the year, Gulf Pacific Cruise Lines filed an application for a Title XI guarantee to aid in financing the construction of an 800-passenger luxury cruise ship.

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. Additionally, the Padelford Packet Boat Co. offered cruises on the Upper Mississippi River and along the Gulf Coast.

Five operators provided local coastwise service with vessels carrying 100 or fewer passengers. American Canadian Line served the New England Coast, Great Lakes, Saguenay River of Canada, and the Caribbean; American Cruise Lines served the Atlantic Coast; Clipper Cruise Line and Coastal Cruise Line served the Atlantic Coast and Caribbean; and Exploration Cruise Lines operated on the U.S. and Canadian Pacific Coast, including Alaska.

Section 804 Activities

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

On November 30, 1983, the Maritime Administrator waived provisions of section 804(a) to allow United States Lines, Inc., (USL) to charter and operate a foreign-flag ship as a feeder vessel in USL's service for a period of 2 years. In addition, a section 804(a) waiver, previously granted to USL to charter and operate a German-flag vessel, was cancelled.

On December 8, 1983, the Agency granted a waiver to USL and three other subsidized operators—American President Lines, Ltd.; Lykes Bros. Steamship Co., Inc.; and Waterman Steamship Corp. The four companies are parties to the American-flag Common Carrier Charter Agreement (Federal Maritime Commission Agreement No. 14020). The waiver allows them to charter available capacity on a foreign-flag vessel or vessels that may be operated by one of the parties to the agreement, effective for the term of the agreement.

Foreign Transfers

During FY 1984, MARAD approved the transfer of 100 ships of 1,000 gross tons and over to foreign firms. Fifty-seven were sold for scrapping abroad. (See Table 16.)

Permission also was granted for the foreign transfer of 257 vessels of less than 1,000 gross tons during the fiscal year. These included 132 commercial and 125 pleasure craft.

In addition, MARAD approved five contracts of affreightment and charter to aliens of 49 U.S.-owned ships of over 1,000 gross tons plus 77 smaller vessels.

Pursuant to Public Law 89–346 and 46 CFR 221.21–221.30, the Agency approved the retention of 49 banks on the Roster of Approved Trustees.

Table 12: U.S. OCEANBORNE FOREIGN TRADE/COMMERCIAL CARGO CARRIED

Tonnage (Millions)

Calendar Year	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Total Tons	628.9	615.6	698.8	775.3	775.6	823.1	772.2	760.0	675.5	630.4
U.S.-Flag Tons	40.9	31.4	33.8	34.8	32.1	35.0	28.2	34.2	31.1	36.7
U.S. Percent of Total	6.5	5.1	4.8	4.5	4.1	4.2	3.7	4.5	4.6	5.8
Liner Total Tons	51.4	44.3	49.8	47.8	56.5	57.0	59.3	60.0	54.5	56.8
Liner U.S.-Flag Tons	15.3	13.6	15.4	14.4	16.0	15.7	16.2	16.5	14.3	14.0
Liner U.S. Percent	29.8	30.7	30.9	30.2	28.3	27.5	27.3	27.6	26.2	24.6
Non-Liner Total Tons	282.7	275.3	289.6	289.0	308.8	342.7	356.7	365.6	335.8	317.7
Non-Liner U.S.-Flag Tons	5.0	3.8	4.9	5.7	4.5	3.6	4.1	4.5	3.3	4.8
Non-Liner U.S. Percent	1.8	1.4	1.7	2.0	1.5	1.0	1.2	1.2	1.0	1.5
Tanker Total Tons	294.8	296.0	359.4	438.6	410.3	423.4	356.3	334.4	285.3	256.0
Tanker U.S.-Flag Tons	22.5	14.0	13.6	14.6	11.6	15.7	7.9	13.2	13.5	17.9
Tanker U.S. Percent	7.0	4.7	3.8	3.3	2.8	3.7	2.2	3.9	4.7	7.0
					Value ($ Billions)					
Total Value	124.2	127.5	148.4	171.2	195.8	242.1	294.3	315.4	281.2	267.4
U.S.-Flag Value	22.0	22.4	26.4	28.0	30.7	35.7	42.3	47.0	43.5	43.0
U.S. Percent of Total	17.7	17.5	17.8	16.4	15.7	14.7	14.4	14.9	15.5	16.1
Liner Total Value	63.4	64.0	75.8	82.3	99.9	117.6	136.9	148.0	140.6	139.6
Liner U.S.-Flag Value	19.4	20.0	23.9	25.2	28.6	32.5	39.2	41.7	39.1	37.9
Liner U.S. Percent	30.6	31.2	31.6	30.7	28.6	27.6	28.7	28.1	27.8	27.2
Non-Liner Total Value	34.7	36.6	38.2	42.7	52.5	62.0	74.1	81.0	72.0	69.8
Non-Liner U.S.-Flag Value	.8	1.0	1.1	1.2	1.0	1.1	1.3	1.9	1.2	1.2
Non-Liner U.S. Percent	2.3	2.8	2.8	2.8	1.8	1.7	1.8	2.3	1.7	1.7
Tanker Total Value	26.0	26.9	34.4	46.2	43.4	62.5	83.3	86.4	68.5	58.0
Tanker U.S.-Flag Value	1.8	1.4	1.4	1.6	1.1	2.1	1.8	3.4	3.2	4.0
Tanker U.S. Percent	6.9	5.1	4.2	3.5	2.7	3.4	2.1	3.9	4.7	6.8

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

Table 13: ODS ACCRUALS AND OUTLAYS—JANUARY 1, 1937, TO SEPTEMBER 30, 1984

Calendar Year of Operation	Accruals			Outlays		
	Subsidies	Recapture	Subsidy Accrual	Paid In FY 1984	Total Amount of Net Accrual Paid	Net Accrual Liability
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	40,515	219,297,428	–0–
1975	260,676,152	–0–	260,676,152	153,748	260,676,152	–0–
1976	275,267,465	–0–	275,267,465	–0–	275,267,465	–0–
1977	294,779,691	–0–	294,779,691	–0–	294,779,691	–0–
1978	285,075,424	–0–	285,075,424	643,692	285,075,424	–0–
1979	279,347,879	–0–	279,347,897	1,035,299	279,347,897	–0–
1980	385,399,792	–0–	385,399,792	4,628,490	385,399,792	–0–
1981	350,299,767	–0–	350,299,767	6,678,675	350,299,767	–0–
1982	364,833,552	–0–	364,833,552	18,195,591	364,833,552	–0–
1983	275,821,894	–0–	275,821,894	30,200,977	266,253,931	9,567,963
1984	338,789,000	–0–	338,789,000	322,682,687	322,682,681	16,106,313
Total Regular ODS	$7,428,747,325	$238,186,435	$7,190,560,890	$384,259,674	$7,164,886,614	$25,674,276
Soviet Grain Programs	$147,132,626	–0–	$147,132,626	–0–	$147,132,626	–0–
Total ODS	**$7,575,879,951**	**$238,186,435**	**$7,337,693,516**	**$384,259,674**	**$7,312,019,240**	**$25,674,276**

Four new banks also were approved as trustees and one was removed from the roster.

Fifty-three foreign sale violations involving privately owned ships were reported, and 36 violations were mitigated or settled during FY 1984.

User charges for filing applications for foreign transfers and similar actions totaled $133,790 in this reporting period.

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, 88 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.

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

The Agency's pollution control study activities address vessel discharges of oil, hazardous substances, sewage, and garbage; vessel stack and volatile vapor emissions; and the development of safe,

Table 14: OPERATING-DIFFERENTIAL SUBSIDY ACCRUALS AND OUTLAYS BY LINES—JANUARY 1, 1937, TO SEPTEMBER 30, 1984

Lines	Accruals			ODS Paid	Net Accrued Liability
	ODS	Recapture	Net Accrual		
Aeron Marine Shipping[9]	$ 24,587,408	$ -0-	$ 24,587,408	$ 23,736,756	$ -850,652
American Banner Lines[1]	2,626,512	-0-	2,626,512	2,626,512	-0-
American Diamond Lines[1]	185,802	28,492	157,310	157,310	-0-
American Export Lines[2]	693,821,868	10,700,587	683,121,281	683,121,281	-0-
American Mail Lines[3]	158,340,739	7,424,902	150,815,837	150,815,837	-0-
American President Lines[3]	972,633,361	17,676,493	954,956,868	952,161,414	2,795,454
American Shipping[9]	14,645,061	-0-	14,645,061	13,847,387	797,674
American Steamship	76,462	-0-	76,462	76,462	-0-
Aquarius Marine Co.[9]	18,645,750	-0-	18,645,750	18,024,224	621,525
Aries Marine Shipping	24,923,374	-0-	24,923,374	24,923,374	-0-
Atlantic & Caribbean S/N[1]	63,209	45,496	17,713	17,713	-0-
Atlas Marine Co.	18,567,577	-0-	17,093,785	17,093,785	1,473,792
Baltimore Steamship[1]	416,269	-0-	416,269	416,269	-0-
Bloomfield Steamship[1]	15,588,085	2,613,688	12,974,397	12,974,397	-0-
Chestnut Shipping Co.	33,099,918	-0-	33,099,918	31,817,510	1,282,408
Delta Steamship Lines	565,705,491	8,185,313	557,520,178	555,020,592	2,499,586
Ecological Shipping Co.	4,860,743	-0-	4,860,743	4,860,743	-0-
Farrell Lines	540,926,955	1,855,375	539,071,580	538,473,091	598,489
Prudential Lines[4]	618,494,723	24,223,564	594,271,159	593,104,378	1,166,781
Gulf & South American Steamship[5]	34,471,780	5,226,214	29,245,566	29,245,566	-0-
Lykes Bros. Steamship	1,233,915,527	52,050,598	1,181,864,929	1,181,364,929	500,000
Margate Shipping	55,814,697	-0-	55,814,697	53,731,600	2,083,097
Moore McCormack Bulk Transport	42,960,530	-0-	42,960,530	41,280,084	1,680,446
Moore McCormack Lines[10]	669,642,384	17,762,445	651,879,939	650,121,627	1,758,312
N.Y. & Cuba Mail Steamship	8,090,108	1,207,331	6,882,777	6,882,777	-0-
Oceanic Steamship[6]	113,947,681	1,171,756	112,775,925	112,775,925	-0-
Ocean Carriers[9]	27,381,462	-0-	27,381,462	26,881,462	500,000
Pacific Argentina Brazil Line[1]	7,963,936	270,701	7,693,235	7,693,235	-0-
Pacific Far East Line[7]	283,693,959	23,479,204	260,214,755	260,214,755	-0-
Pacific Shipping Inc.	17,894,201	-0-	17,894,201	15,839,371	2,054,830
Prudential Steamship[1]	26,352,954	1,680,796	24,672,158	24,672,158	-0-
Sea Shipping[1]	25,819,800	2,429,102	23,390,698	23,390,698	-0-
States Steamship	231,997,100	5,110,997	226,886,103	226,869,100	17,003
United States Lines[8]	682,932,432	54,958,689	627,963,743	627,105,726	868,017
Waterman Steamship	227,170,916	-0-	227,170,916	225,689,786	1,481,130
Worth Oil Transport	17,168,742	-0-	17,168,742	15,023,661	2,145,081
South Atlantic Steamship[1]	96,374	84,692	11,682	11,682	-0-
Seabulk Transmarine I & II, Inc.	12,693,932	-0-	12,693,932	12,193,932	500,000
Equity	629,504	-0-	629,504	629,504	-0-
Total Regular ODS	$7,428,747,325	$238,186,435	$7,190,560,890	$7,164,886,614	$25,674,276
Soviet Grain Programs	$147,132,626		$147,132,626	$147,132,626	$-0-
Total ODS	**$7,575,879,951**	**$238,186,435**	**$7,337,693,516**	**$7,312,019,240**	**$25,674,276**

[1] No longer subsidized or combined with other subsidized lines.
[2] AEL was acquired by Farrell Lines, March 29, 1978.
[3] APL merged its operations with AML's, October 10, 1973.
[4] Changed from Prudential-Grace Lines, Inc., August 1, 1974.
[5] Purchased by Lykes Bros. Steamship Co., Inc.
[6] Went into receivership August 2, 1978.
[7] Ceased to be subsidized line in November 1970.
[8] Included 33 subsidized ships in November 1979.
[9] Accruals to be adjusted in Fiscal Year 1984.
[10] Purchased by United States Lines October 1983.

Table 15: ODS CONTRACTS IN FORCE—SEPTEMBER 30, 1984

A. Liner Trades:

Operator and Contract No.	Contract Duration	Number of Subsidized Ships	Service (Trade Route/Area)	Annual Sailings Minimum	Annual Sailings Maximum
American President Lines, Ltd. MA/MSB-417	1-01-78 to 12-31-97	23	Transpacific Services: [1]	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	7	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	2	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	35	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, 10]	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	80
			U.S. Pacific/Far East, South (TR 17/29)[10]	20	
					Overall maximum not to exceed 330
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	4	U.S. North Atlantic/Western Europe (TR 5, 7, 8, 9/11)	70	105
		11	U.S. Atlantic and Pacific/Far East (TR 12/29)[11]		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 17)

Table 15: (Continued)

Operator and Contract No.	Contract Duration	Number of Subsidized Ships	Service (Trade Route/Area)	Annual Sailings Minimum	Annual Sailings Maximum
United States Lines (S.A.), 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	3[14]	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	0[15]	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	0[16]	U.S. Gulf/Western Europe (TR 21)	24	35
Total Liner Trades		**112**			

[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] In addition, Farrell owns two LASH vessels: AUSTRAL RAINBOW, which is on charter to the Military Sealift Command, and AUSTRAL LIGHTNING, which is idle and not currently assigned to a trade route.

[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 Colombia.

[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 1¼ 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. Operation in 1984 is with four C8 vessels.

[12] Subsidized service with no more than 4 vessels may commence at any time after one year after execution of contract addendum adding the TR 16 service.

[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.

[14] Between March and July 1984, Waterman sub-bareboat chartered three of the six vessels assigned to the contract back to Central Gulf Lines, from which they had been bareboat chartered.

[15] Both vessels which had previously been assigned to the contract were turned in to MARAD under custodial agreements, and are currently at NDRF Beaumont.

[16] Waterman is authorized to operate its LASH vessels assigned to other contracts on TR 21.

Table 15: (Continued)

B. Bulk Trades:

Operator and Contract No.	ODS Agreements: Contract Effective Date	ODS Agreements: Contract Termination Date	Number of Subsidized Ships 9/30/84	Service	Annual Sailings: 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, Inc. MA/MSB-440	3-27-81	3-26-2001	1	Worldwide Bulk Trade	335
Seabulk Transmarine III, Inc. MA/MSB-442	9-20-81	9-19-2001	1	Worldwide Bulk Trade	335
Total Bulk Trades			**24**		

effective means to dispose of large volumes of hazardous wastes at sea.

During FY 1984, MARAD continued to participate in national activities and other endeavors related to the global work of the International Maritime Organization. Of particular importance with respect to environmental protection were the activities of the National Committee on Marine Pollution, the National Committee on Ocean Dumping, the Subcommittee on Safety of Life at Sea, and the Working Group on Bulk Chemicals.

Incinerator Ship Program

MARAD and the Environmental Protection Agency (EPA) have been working to establish chemical waste incinerator ship capabilities in the United States since 1974. This effort was formalized in October 1980 and reaffirmed in October 1981.

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 at the Tacoma Boatbuilding Co., Tacoma, WA. These ships, scheduled for delivery in 1985, are being certified by the Coast Guard and classified by the American Bureau of Shipping.

Asbestos Control

During FY 1984, MARAD continued implementation of its *Action Plan for the Control of Asbestos Exposures and Uses in MARAD Programs.* The Agency's policy is to prevent or stringently limit personnel exposure to airborne asbestos fibers.

The action plan is dedicated to the 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. (See section on Safety Program in Chapter 10.)

Table 16: FOREIGN TRANSFER APPROVALS—FY 1984

	Pursuant to Section 9 (U.S. owned and U.S. documented)		
	No. of Vessels	Gross Tons	Average Age
Tankers	25	432,848	
Cargo	33	296,659	
Cargo/Passenger	0		
Miscellaneous	42	126,344	
Total	**100**	**855,851**	

Recapitulation By Nationality:	Number	Gross Tons
British	1	3,241
Canadian	3	19,882
Colombian	8	11,860
Indonesian	4	8,235
Italian	1	2,272
Mexican	5	25,609
Panamanian	12	39,940
Venezuelan	2	2,572
Total	**36**	**113,611**
Sale to U.S. Trustee for Alien Benefit (Financial)	1	11,330
Sale to Domestic Alien-Controlled Corporation	6	13,610
Sale to Alien for Scrapping	57	717,291
Total	**64**	**742,240**
GRAND TOTAL	**100**	**855,851**

Chapter 3

Domestic Operations

About one billion tons of cargo is moved each year in the domestic waterborne commerce of the United States. This segment of the American merchant marine includes the Great Lakes, inland waterways, and noncontiguous oceans, intercoastal, and coastwise trades.

Great Lakes

The number of vessels in the U.S. Great Lakes fleet (active and inactive) decreased slightly from 143 in fiscal year 1983 to 139 but the carrying capacity remained constant at 3 million deadweight tons (dwt.) in fiscal year 1984. (See Table 17.)

Nonetheless, U.S. Great Lakes fleet operations showed a modest recovery. The number of active U.S.-flag vessels increased to 62, compared to 54 as of September 30, 1983, and the cargo carried during the shipping season increased to 101 million tons, up 17.6 million from a year earlier. The upsurge began in late 1983 but met some constraints in January 1984 because of heavy ice. Those delays, coupled with continued demand, prompted a one-month advanced start-up in the 1984 Great Lakes season.

Iron ore was the major commodity, with 38,169,870 net tons being transported during the 1984 navigation season through September. This represented a 21 percent increase over the equivalent period in 1983. The 1984 increase was attributed to the higher operating levels of U.S. steel mills.

Lykes Bros. Steamship Co. operated two combination breakbulk/container vessels in the Great Lakes/Mediterranean trade during FY 1984. Export cargoes included bagged foods, vehicles, and containers, primarily shipped by U.S. Government agencies such as the Departments of Agriculture and Defense, the Agency for International Development and the Export-Import Bank.

Both outbound and inbound liner cargo tonnage in the Great Lakes trade increased during the 1984 shipping season.

The threat of a strike by the United Mine Workers in this reporting period (later settled) caused increased activity in U.S. coal shipments to electric power generating plants in the Great Lakes region in FY 1984. The build-up left many customers with extensive coal stockpiles, leading to the possibility of a decline in coal shipments later in the shipping season.

U.S.-flag passenger cruise operations on the Great Lakes increased during this reporting period.

American Canadian Lines, Inc., of Warren, RI, initiated cruises from Detroit to Sault Ste. Marie, MI, northern Georgian Bay and return aboard the 80-passenger CARIBBEAN PRINCE. Her sistership, NEW SHOREHAM II, is planning 12-day cruises between Warren, RI, and Saguenay River, Canada.

The Michigan-Wisconsin Transportation Co. established passenger and vehicle service across Lake Michigan between Milwaukee and Ludington,

Table 17: U.S. GREAT LAKES FLEET—SEPTEMBER 30, 1984

	Vessels	Gross Registered Tons	Estimated Deadweight Tons
Total	**139**	**1,668,726**	**3,045,303**
Bulk Carriers	124	1,599,425	3,003,850
Active	58	899,832	1,736,740
Temporarily Inactive	12	189,547	366,200
Laid-Up Inactive	54	510,046	900,910
Tankers	6	29,326	41,453
Active	3	14,022	20,578
Temporarily Inactive	3	15,304	20,875
Others[1]	9	39,975	[2]
Active	1	3,968	
Temporarily Inactive	2	7,234	
Laid-Up Inactive (more than 12 months)	6	28,773	

[1] Includes railroad car ferries, auto ferries.

[2] Not available.

MI, in FY 1984. The newly formed company purchased rail car ferries formerly operated by the Chessie System.

Inland Waterways

During calendar year 1983 (the last year for which statistics are available), 560,277,209 million tons of traffic moved on the inland waterways of the United States, compared with 571.1 million tons in 1982. The cargo consisted primarily of bulk commodities and raw materials.

More than 318 million tons, or 56.7 percent of the total annual shipments, were coal, coal products, crude oil, and petroleum products. Some of these cargoes moved to power plants which could not otherwise have been supplied.

Shipments of chemicals and allied products totaled approximately 39 million tons, or 7 percent of the inland waterways total. Farm products for either domestic use or export markets provided 69 million tons or 12.3 percent of inland waterways cargoes.

Overtonnaging remains a serious problem in the barge industry. One fourth of the inland fleet was inactive at the end of this reporting period.

However, during fiscal year 1984, there were some signs of economic turnaround in inland waterways commerce. As the general economy began to improve, operators in the trade were cautiously optimistic that the prolonged recession afflicting their industry would abate.

Grain barge loadings on the Upper Mississippi were up significantly from 1982 to 1983, reaching a record 31 million tons.

Average grain barge freight rates in 1983 also rose above the previous year's levels on the Mississippi, although they were somewhat lower on the Ohio and Illinois Rivers.

Domestic Ocean Trades

As of September 30, 1984, there were 198 large, self-propelled merchant vessels with a combined carrying capacity of 10 million deadweight tons (dwt.) operating in the U.S. coastwise, intercoastal, and domestic offshore trades. This reflected a net decrease of 6 vessels and 300,000 million dwt. from FY 1983 totals.

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

- The 58,300-dwt. crude oil tanker EXXON BAYTOWN.
- The 43,000-dwt. product tankers EXXON CHARLESTON and EXXON WILMINGTON.
- The 47,000-dwt. integrated tug/barge (ITB) product tankers PHILADELPHIA and MOBILE.

In the Alaskan crude oil trade during FY 1984, 54 U.S.-flag and 7 foreign-flag tankers lifted 86.8 million long tons, an increase of 1.5 million tons, or 1.7 percent, over the FY 1983 level.

The tankers made a total of 802 voyages from Valdez. The U.S.-flag vessels served ports in the Lower 48 States, Alaska, Hawaii, and Puerto Armuelles in Panama (for transshipment to the Gulf and East Coasts). The foreign-flag ships served the U.S. Virgin Islands (a refining point) and St. Lucia (a storage point) via Cape Horn.

During the first 4 months of this reporting period there was a temporary shortage of domestic trade tankers available for service in the Alaskan crude oil trade. Accordingly, 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 CDS-built vessel to the Alaskan oil trade under certain conditions for 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 is required.

During FY 1984, the Caribbean terminus of the Trans-Panama Pipeline at Chiriqui Grande, Panama, handled shipments by 36 U.S.-flag tankers. These vessels lifted a total of 23.2 million tons in the course of 528 voyages to various U.S. Gulf and Atlantic ports.

The 80-mile Trans-Panama Pipeline, opened in 1982, has a maximum flow rate of 800,000 barrels per day. In the first 9 months of FY 1984, its flow averaged 525,000 barrels per day.

The market share of U.S.-flag tankers in the Virgin Islands refined products trade for the first 10 months of FY 1984 amounted to 44 percent, an increase of 2 percent over all of FY 1983.

Other Domestic Shipping Activities

In other domestic shipping activities during this reporting period:

- MARAD participated in a task group which addressed tanker supply and demand for a study by the National Petroleum Council (NPC). The NPC report will assess the ability of the oil shortage sites, pipeline and marine transportation systems, and domestic refining systems to draw-down, distribute, and refine crude oil from the Strategic Petroleum Reserve at its projected draw-down rate in 1990.
- Plans for a U.S.-flag export coal top-off service at a deepwater anchorage in lower Delaware Bay were delayed. The Delaware Coastal Zone Industrial Control Board ruled that the barge-to-ship transfer operation proposed by Coal Logistics Corp. was subject to the State's Coastal Zone Act, which bars offshore transfer facilities for bulk cargo. Coal Logistics appealed the ruling.
- MARAD continued to take a strong position on protections afforded to domestic shipping by the Jones Act and related coastwise laws. The Agency also completed its findings and provided advice to the U.S. Customs Service, Department of the Treasury, on five requested waiver actions involving use of high-technology passenger vessels. Limited, short-term waivers were granted in two cases based on defense-related considerations.
- Under the Industry Cooperative Research Plan, MARAD conducted a comprehensive study of inland waterway management strategies in a depressed market. Results of this research will be made available to all inland operators.

- MARAD developed computer software to simulate economic and operational characteristics of inland waterway transportation and its competing modes. As a result of this Agency-funded contract, it is now possible to display computerized data on major segments of the U.S. rail and waterway systems, plus commodity flows on those segments, and show the least-cost transportation route through the system.

Charter Market Activity

In FY 1984, 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, as noted above in the section on Domestic Ocean Trades.

In September 1984, Exxon signed a construction contract with the National Steel and Shipbuilding Co. for two 209,000-dwt. Jones Act tankers, which will be joining the Alaskan oil trade in 1986–87.

The upcoast (Atlantic) petroleum market remained slow in FY 1984. This was due to low levels of refinery utilization, extremely cautious stock replenishment, slow product demand, and declining product prices.

At the close of FY 1984, freight rates in the "spot" (single-voyage) market were essentially unchanged from levels of 1983. Although the majority of the tankers involved in this trade were proprietary vessels either owned or long-term chartered and operated by the oil companies, a significant single-voyage market continued for independent tanker operators. Many of the older, less-efficient vessels had been laid up or scrapped by the end of the fiscal year.

Offshore Drilling

On September 30, 1984, U.S. drilling contractors owned 470 offshore mobile exploratory drilling rigs with the largest concentration located in the Gulf of Mexico. Also on that date, 254 U.S.-owned rigs were located in U.S. waters, of which 240 were in the Gulf of Mexico.

These rigs were supported by nearly 1,000 U.S.-flag vessels of 150-feet overall length or greater. Nearly 90 percent of the service craft were supply or combination tug/supply vessels. In excess of 1,400 crew and utility vessels—all of less than 150 feet length overall—supported U.S. offshore drilling rigs and platforms during this reporting period.

The U.S. offshore industry and related support industries suffered the worst slump in its 30-year history in 1983. However, during FY 1984, the demand for offshore drill rigs steadily improved, particularly for equipment needed for operations in deepwater and other harsh environments.

The most accepted measure of the health of the U.S. offshore industry is the rig-utilization rate. This is defined as that percentage of the total fleet under contract. From a low of 68.3 percent in September 1983, the utilization rate for the U.S.-owned rig fleet increased to 84.5 percent in September 1984. Much of the increase in utilization was attributed to drilling on newly-acquired tracts in the Gulf of Mexico.

Five area-wide lease sales in the Gulf resulted in the leasing of nearly 2,000 tracts, most of which carry 5-year terms. More than 40 percent of the tracts leased were in waters over 300 feet deep. This increased the demand for a new generation of deepwater rigs and support vessels.

As of September 30, 1984, five rigs were under construction in U.S. shipyards.

Newly expanded electro-coal transfer facility at Danville, IL, now has an annual throughput capacity of more than 25 million tons and on-ground storage capacity of 4.5 million tons of coal.

Chapter 4

Market Development

The Maritime Administration (MARAD) is engaged in comprehensive marketing programs designed to increase U.S.-flag participation in the Nation's oceanborne foreign commerce. The programs concentrate on marketing assistance to U.S.-flag operators, improvement of communications between carriers and shippers, market research, and direct consultation with international traders.

Marketing Program

The marketing program is conducted in cooperation with MARAD offices strategically located throughout the country. During fiscal year 1984, trade specialists assigned to regional and area offices consulted with the transportation policymakers of 922 firms engaged in foreign commerce to encourage the utilization of U.S.-flag vessels for the carriage of their oceanborne commerce.

Reports from carriers and shippers attributed over $26,000,000 in U.S.-flag revenues to consultations. Over the last 10 years in excess of $230 million in additional revenue for U.S.-flag carriers has been credited to this program.

During FY 1984, carriers continued their utilization of MARAD's Market Lead System and Shipper Information System, both of which are designed to enhance the competitive marketing ability of U.S.-flag operators.

Nine Market Lead System reports, drawing on market intelligence from private and Government sources, were distributed to vessel operators during the year. These reports identified 393 individual business opportunities having cargo potential for U.S.-flag carriers.

In FY 1984, the Agency participated in 37 seminars, forums, and workshops attended by shippers, carriers, and other maritime interests. These meetings addressed topics of concern to users of ocean transportation while alerting them to available U.S.-flag services. The Shipping Act of 1984, the U.N. Code of Conduct for Liner Conferences, and the impact of intermodalism were among the topical areas covered at conferences sponsored by the Agency in such diverse locations as Tampa, FL, Chicago, IL, Northern New Jersey, and St. Louis, MO. More than 1,000 executives of firms involved in foreign trade attended these various meetings.

Market Analysis and Planning

The Market Analysis and Planning Program is MARAD's primary area of research aimed at improving the U.S.-flag fleet's competitiveness and profitability. It also assists in the development of Agency policies on major issues that can have market impacts, helps to gauge the health of the shipping industry, and is useful in formulating effective marketing programs.

In FY 1984, MARAD completed a study, *A Market Assessment of U.S. Flag Bulk-Container Vessels.* The study assessed the economic feasibility of U.S.-flag combination ships capable of efficiently transporting both bulk and containerized cargoes. The report concluded that U.S.-flag combination vessels could compete effectively, especially in the U.S. Atlantic- and U.S. Gulf-Mediterranean trades and in the U.S. Pacific-Far East services.

During this reporting period, a study was also conducted on the impediments to U.S. operators' participation as third-flag carriers of foreign-to-foreign cargoes. The United Nations Code of Conduct for Liner Conferences, with its cargo-sharing mechanism, is expected to create additional impediments to U.S.-flag crosstrading.

The report, *U.S.-Flag Crosstrading—Impediments to U.S.-Flag Crosstrading Operations,* found that crosstrade operations made significant contributions to U.S.-flag liner earnings in 1982.

It also concluded that the loss of crosstrading revenues would have serious consequences for those American carriers who, in recent years, encountered overtonnaging and slim profit margins on the highly competitive U.S. foreign trade routes.

U.S.-P.R.C. Bilateral Cargo

During the year, MARAD monitored liner cargo moving under the terms of the United States-People's Republic of China Maritime Agreement which was signed on September 17, 1980, and expired on December 17, 1983.

In calendar year 1983, U.S.-flag liner vessels carried 205,907 long tons of cargo in the bilateral trade, while P.R.C.-flag vessels carried 338,325 long tons.

During the year U.S.-flag bulk vessels did not carry any cargo in this bilateral trade. (See also Chapter 9.)

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.

Table 18: GOVERNMENT-SPONSORED CARGOES—CALENDAR YEAR 1983[1]

Public Law 664 Cargoes:

Shipper	U.S.-Flag Revenue ($1,000)	Total Metric Tons	U.S.-Flag Metric Tons	Percentage U.S.-Flag Tonnage
Agency for International Development (AID):				
Loans and Grants	62,157	1,245,658	559,887	45[3]
P.L. 480—Title II	102,417	1,869,604	902,961	48[3]
Section 416	3,815	44,645	20,986	47[3]
Board of International Broadcasting	19	137	122	89
Department of Agriculture:				
P.L. 480—Title I	123,328	3,674,699	1,772,069	48[3]
Department of Commerce:				
Industry and Trade Administration				
Other Agencies	410	1,611	496	31[4]
Department of Defense:				
Military Assistance Program and the				
Foreign Military Sales Credit Program	34,001	115,581	89,575	78[5]
Corps of Engineers	2,698	8,226	8,218	100[5]
Naval Facilities Engineering				
Command (Diego Garcia)	8,172	23,486	23,486	100
Naval Facilities Engineering				
Command (Somalia)	1,896	4,281	4,281	100
Department of Energy:				
Bonneville Power Administration	19	842	110	13[4]
Strategic Petroleum Reserve	74,200	11,687,165	9,539,292	82[6]
National Aeronautics and Space Administration	235	596	263	44[3]
Tennessee Valley Authority	12	115	88	77
Department of the Treasury:				
Chrysler Corporation	2,466	22,893	14,070	61[7]
General Services Administration Stockpile	8,372	805,428	805,394	100
Department of Transportation:				
Urban Mass Transportation Administration	3,338	23,398	11,592	50[2]
Federal Railroad Administration	83	4,248	2,246	53
U.S. Information Agency	374	1,203	1,175	89
Department of State:				
Foreign Building Office	559	3,620	3,522	97
(not including AID)				
Other Agencies	206	238	201	84[8]

(Continued on page 25)

Public Resolution 17 Cargoes:

	Total Metric Tons	U.S.-Flag Metric Tons	Total Freight Revenue	U.S.-Flag Freight Revenue	Percentage U.S.-Flag
Export-Import Bank	100,273	86,152	$39,739,883	$32,474,602	82%[10]

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
$36,871,000	1,667,848	814,353	49[9]

[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 Facilities Engineering Command—NAVFAC (Diego Garcia and Somalia). Other Department of Defense cargoes not included.

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

[3] This program did not meet the minimum 50 percent U.S.-flag participation level. U.S.-flag service was available on a timely basis to have enabled the agency to meet the cargo preference requirement.

[4] Agencies complied with the statute as the imbalance in favor of foreign-flag shipments was due to nonavailability of U.S.-flag service.

[5] Documents were only received from Honduras, Oman and Saudi Arabia projects.

[6] MARAD monitors the SPR program on the basis of long-ton miles (LTM). In CY 1983, this program provided a total of 33,922,489,645 LTM of which U.S.-flag carriers derived 20,884,507,992 LTM or 61 percent%.

[7] The three year Chrysler Guarantee Loan program was terminated on August 15, 1983.

[8] Cargo of government and private agencies that generated less than 100 metric tons of cargo in 1983. The agencies which reported in 1983 are: Action, Agriculture Marketing Service, Agriculture Research Service, American Battle Monuments, Animal, Plant Health Inspection Service, Center for Disease Control, Defense Accounting Office, Department of Defense, Drug Enforcement Administration, Federal Aviation Administration, Foreign Agricultural Service, Federal Bureau of Investigation, Federal Highway Administration, General Accounting Office, Geological Survey, Health and Human Services, Immigration and Naturalization Service, International Exchange Service, Labor Department, Library of Congress, Narcotics, Assistance Unit, National Oceanic and Atmospheric Administration, National Park Service, National Science Foundation, Peace Corps, Smithsonian Institute Soil Conservation Service, Treasury Department, U.S. Custom Services, U.S. Trade Representatives, and Veterans Administration.

[9] While statistics are shown for CY 1983 shipments, Israeli cash transfer program is maintained on a fiscal year basis. This reflects the terms of the side letter executed each year between the Government of Israel (GOI) and AID. On a fiscal year (1983) basis, GOI shipped exactly 50% on U.S.-flag vessels.

[10] Compliance based on Freight Revenue only.

To assure that the cargo preference laws are followed, MARAD monitors the shipping activities of 54 Federal Agencies, independent establishments, and Government corporations. (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. Bills-of-lading are provided on DOD program cargoes, which include the Foreign Military Sales Credit (FMSC) Program and the Military Assistance Program (MAP). Computerized data are also provided by DOD for FMSC and MAP shipments arranged by the Military Traffic Management Command (MTMC) for these programs' participants.

An interagency liaison program and a computerized reporting system enabled MARAD to process 18,697 bills of lading for 1983. These documents covered civilian Agencies, some DOD contractor shipments, Eximbank, and most FMSC cargoes. The equivalent of 5,016 bills of lading covering MAP and FMSC shipments also were processed, using DOD computer tapes.

Federal Agencies which carried their Government-sponsored cargoes on U.S.-flag vessels exclusively included the Army Corps of Engineers, Naval Facilities Engineering Command, and the General Services Administration (Stockpile Program). Agencies which substantially exceeded the 50 percent requirements were the Board of International Broadcasting (89%); the Tennessee Valley Authority (77%); United States Information Agency (89%), and the Foreign Building Office of the State Department (97%).

Department of Defense

Total tonnage and ocean freight revenue for U.S.-flag carriers under the Foreign Military Sales Credit Program in calendar year 1983 exceeded 1982 levels. Two countries which had U.S.-flag deficits at the end of 1982 eliminated these deficits. During 1983, U.S.-flag carriers received 72 percent of the FMSC revenue and 75 percent of the total tonnage.

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 1983, 379.1 million barrels of crude oil had been stored at five SPR sites.

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

In calendar year 1983, U.S.-flag tankers carried foreign-procured cargo which resulted in 20.9 billion long ton/miles (61.1 percent), and their operators received $74.2 million in revenue. All shipments in calendar year 1983 were from foreign sources.

Eximbank

In the Export-Import Bank (Eximbank) program, total ocean freight revenues decreased from $57.3 million in calendar year 1982 to $40 million in 1983. During 1983, U.S.-flag operators earned $32 million, representing 82 percent of the total ocean freight revenues.

The downturn in the Eximbank program was 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 1982 until new policies for allocating funds could be adopted, the Eximbank operated under a moratorium on new credit authorizations. The decline in loan activity reduced the number of shipments made during 1983.

Results of intensified marketing efforts and diversification of cargo are evident in this aerial view of the Port of Corpus Christi, TX.

Chapter 5

Port and Intermodal Development

During fiscal year 1984, the Maritime Administration (MARAD) continued to provide research and technical assistance to State and local port authorities and private industry. The Agency also developed contingency plans for the operation of U.S. ports and port facilities in war or other national shipping emergencies. These efforts were aimed at improving the planning and operation of ports, waterways, and intermodal transportation.

Annual Report on Ports

Under section 2 of Public Law 96–371, enacted October 3, 1980, the Secretary of Transportation is required to submit an annual report to Congress on the status of public ports of the United States. The second report, forwarded in September 1984, reported on the years 1982 and 1983.

It reviewed the composition of the port industry and the importance of U.S. ports to the Nation's economy and military security, and highlighted key issues and problems facing the port industry.

Technical Port Assistance

MARAD provides technical assistance to strengthen the role of U.S. ports in national defense and economic development. This involves the development of analytical research tools and techniques for improving planning, productivity, and the general efficiency of port management and terminal operations.

Planning Program

In its cost-shared port and intermodal planning program during FY 1984, MARAD conducted cooperative port planning studies with local, State, and regional port agencies and associations; worked with industry on port planning and management information systems, including data base development; performed economic impact and financial analyses; and provided technical assistance in the area of international port development. (See Chapter 9.)

Projects under this program which were completed, continued or initiated in FY 1984 are listed below:

Projects Completed	Description
Port Risk Management Guidebook	Provides the port industry with a reference source for risk management techniques and serves as a "how to" guide to assist port managements in solving common problems.
Marketing and Promotional Methodology for a Port Region	Provides a self-contained methodology which guides and assists ports and/or marine terminal entities in developing regional marketing/promotional programs. (Completed in conjunction with the Northern California Ports and Terminals Bureau, Inc.)
Port Characteristics System	Developed an automated system and users manual for quick access to summary port information for use with microcomputer equipment.
Waterfront Site Utilization Model	Developed an automated system and users manual for port managers to analyze and select best available sites for cargo handling facilities.
Information Retrieval Procedures	Developed procedures and necessary software aids to extract port, commodity and vessel data from MARAD's basic data bases for use with microcomputer equipment.
DOT Study on Transport/ Distribution Problems in Africa	Provided technical assistance to the DOT Study Team on capabilities of selected African ports to handle grain shipments. Examined problems which inhibit flow of food to drought-stricken areas of Africa.

Projects Begun in FY 1984	Description
Inland Waterway Port Management System	Initiated cost-shared design work with the City of St. Louis Port Authority using St. Louis as a demonstration site for developing and operating an automated port management information system for use on the inland waterways.
Port Emergency Data Requirements	Completed identification and ranking of port emergency information requirements that will be addressed further in FY 1985.
Automation of MARAD Port Pricing Formula	Began cost-shared automation of MARAD pricing formula to improve port managers' abilities to determine benchmark prices by examining the impact on revenues of various pricing alternatives.
Port Financial Management Information System	Commenced review of a cost-shared industry proposal to develop an automated management information system for the port industry.

Ongoing Projects	Description
Port Economic Impact Kit	Continued revision of the Kit which assists small and medium-sized ports with limited resources and personnel to quantify their economic contributions to the community.
Public Port Financing in the United States	Continued developing an update of a report to help ports determine the economic viability of projects they can undertake to enhance port development, expansion, and modernization. (Original study completed in 1974.)
U.S. Port Development Expenditure Survey	Continued basic research and data collection to update an in-house MARAD report which analyzes capital expenditure data for marine terminal facilities in principal United States ports. This survey will cover the years 1979–1984, with projections through 1989.
Feasibility of Stimulating Exports from Inland States Through Transportation Innovation	Continued work on development of a program to identify target markets for potential exports and examine ways to reduce the transportation costs involved.
Port Facility Inventory System	Completed reviews of facilities located on the North Atlantic port range and on the Ohio River and its tributaries. Continued development of new data formatting and retrieval procedures.

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 improve productivity and develops procedures for operating ports during national shipping or other port emergencies.

In this reporting period, MARAD continued to support efforts to promote port and harbor improvements where economically warranted.

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.

Projects completed or ongoing in this program in FY 1984 are described below:

Projects Completed	Description
Existing and Potential U.S. Coal Loading Ports	Assessed capabilities and capacities of U.S. ports to handle U.S. coal exports.
Regional Barge Fleeting Management Guide and Handbook	Completed a study of barge fleeting and handbook guide on the Deep River Corridor of the Lower Mississippi River in cooperation with the State of Louisiana. (This handbook and site evaluation methodology have the potential for use in other barge fleeting regions of the nation.)
Strategic Petroleum Reserve (SPR)	Provided support to the National Petroleum Council's Marine Task Group in assessing SPR capabilities under reserve draw-down scenarios.
Minibridge Report	A new methodology for reporting minibridge traffic was developed in cooperation with the Bureau of the Census and a report assessing the impact of this intermodal traffic on U.S. port development was completed. (The analysis was based on 1981–83 data.)
Inventory of American Intermodal Equipment 1984	Updated and published an inventory covering the availability, by type, of U.S. commercial intermodal equipment.
Lightweight Firefighting Module Evaluation	Extended an agreement for testing and evaluating the Lightweight Firefighting Module with the U.S. Navy and National Aeronautics and Space Administration to 1987 and jointly sponsored demonstrations of the module at the Port Authority of New York and New Jersey, Port of Tacoma, and Port of Philadelphia.

(Continued on page 29)

Projects Completed—*Continued*

Projects Completed	Description
Dredging, Dredge Material Disposal, and the London Dumping Convention	Cost-shared a research report with the American Association of Port Authorities and the International Association of Port Authorities on chemical behavior of toxic substances in various types of marine bottom sediments.
Decision Support System for Port Planning and Management	Demonstrated use of a personal computer system in managing port information and data at the Port of New Orleans under a MARAD university research grant to the Marine Research Sciences Center of the State University of New York. (The system was developed as a prototype model for application at all U.S. ports.)

Projects Begun in FY 1984	Description
Comparative Assessment of Technology Utilization and Productivity at Selected Ports	In cooperation with the National Academy of Sciences Marine Board, MARAD commenced a study of technology utilization and operational productivity at selected ports.
Existing and Potential U.S. Grain Loading Ports	Commenced an assessment of the capabilities and capacities of U.S. ports to handle U.S. grain exports.

Ongoing Operations Projects	Description
MARAD–Corps of Engineers Agreement	Continued development of a memorandum of understanding (MOU) between MARAD and the U.S. Army Corps of Engineers on cooperation in marine transportation systems technology, port and waterway development, joint research and development, and applied engineering.
National Vessel In-Port Locator System (VIPLOC)	Encouraged the National Association of Marine Exchanges to develop an automated nationwide vessel traffic reporting capability based on the MARAD-sponsored VIPLOC system.
Port Emergency Planning Program	Continued recruitment and processing of standby Federal Port Controller contracts and participated in the development of an interagency memorandum of understanding with the Military Traffic Management Command, Military Sealift Command, Naval Control of Shipping Organization, U.S. Army Corps of Engineers, and U.S. Coast Guard. (The MOU identifies specific functional responsibilities.)
Analysis of Regional Responses to Oil and Chemical Spills and Development of a Computer-Based Information System	Completed first phase of an automated port information system to assist regional response teams to contain oil and chemical spills in cooperation with the U.S. Coast Guard.
Multipurpose Harbor Service Craft Evaluation	Continued technical evaluation of the City of Tacoma's multipurpose harbor service craft and planned a public presentation on final results of sea trials, maneuvers and performances of the vessel under real-time conditions.

Double-stack trains designed by American President Lines significantly improved the economics of its U.S. land transportation system. These highly innovative trains have recently been adapted to carry high-valued refrigerated cargoes.

Chapter 6

Research and Development

The Maritime Administration (MARAD) research program is designed to assist the principal sectors of the U.S. maritime industry, including shipbuilders, vessel operators, and ports, to become more productive, innovative, and competitive. The program is structured to foster input and participation by industry in cost-shared projects.

The wide range of research and development (R&D) contracts and cooperative agreements awarded by MARAD in FY 1984 are listed in Appendix III.

Shipbuilding

The Shipbuilding Research Program, begun in 1972, has continued to grow in technical content as well as the level of industry support and participation. In addition to the eight technical areas already being addressed by the program, two new areas of research, flexible manufacturing and human resources innovation, were initiated during this reporting period.

Flexible manufacturing is the application of semi-automatic machines coupled with automatic devices, including robotics, to perform a variety of functions. Beginning in FY 1984, the Shipbuilding Research Program, in cooperation with the U.S. shipbuilding industry, initiated the development of a detailed plan for the phased implementation of advanced flexible manufacturing systems and robotics into the shipbuilding process. The plan is scheduled for completion by mid-1985. In addition to technological developments to be pursued, the plan will identify the changes required in the engineering, design, and planning functions to support the use of advanced, automated shipbuilding systems.

The objective is to expedite the development and effective implementation of these systems, including technology development and hardware development requirements, computer-aided design/computer-aided manufacturing (CAD/CAM) support requirements, changes in manufacturing methods, and changes in material flow and facility layout.

The objective of the second new area of shipbuilding research, human resources innovation, is to draw knowledge from and seek active participation in problem solving by shipyard employees not generally engaged in such activities. Several shipyards have agreed to act as test beds for implementing, on a small scale, some of the new "people" concepts, such as work redesign, problem-solving teams, and workforce reorganization. As in other phases of shipbuilding R&D, the productivity gains generated by these experiments will be reported to the entire industry.

A preliminary assessment of this research indicates that it could yield productivity gains far in excess of any new facilities or equipment—without requiring large capital outlays for implementation.

Meanwhile, work continued in the development of innovative shipbuilding methods and equipment in the other basic areas of the program—welding, painting, outfitting, facilities, training, design/production integration, and industrial engineering.

The development of a national body of shipbuilding standards also continued. At the end of FY 1984, more than 125 draft standards had been developed. These proposals are undergoing the rigorous consensus process required for their acceptance as national standards. During the year, 23 standards received industry approval and were published as national shipbuilding standards.

A major research accomplishment of FY 1984 was the implementation and demonstration of a new concept for hull construction called "process lanes." This concept provides for work to flow by individual work stations where specific work is performed in the fabrication and assembly of hull units. Process lanes, which resemble an assembly line process, were implemented by Avondale Shipyards. This innovation has resulted in a 30 percent reduction in hull construction workforce hours when compared to the traditional method of hull assembly at Avondale.

Several other yards are planning to implement the concept in the near future.

Ship Machinery

Ship machinery research in this reporting period continued its long-term emphasis on the development of advanced technology for alternative fuels utilization. The production-oriented design of a standardized, 26,000-shaft-horsepower coal-fired propulsion machinery system was completed; it is applicable to bulk carriers of 80,000 to 180,000 deadweight tons. Basic research and investigative analysis also was completed for advanced coal-firing technology with emphasis on adapting industrial fluidized bed combustion to marine use.

The at-sea testing and demonstration of a petroleum coke-in-oil slurry fuel was begun aboard a bulk carrier operating in the domestic trades.

A preliminary assessment of the potential for coal-in-water slurry fuels for marine propulsion plants also was completed in FY 1984.

A series of projects intended to implement advanced diesel technology in the towboat sector of the maritime industry was initiated in this reporting period. One of these seeks to determine the potential benefits of ceramic coatings in reducing fuel consumption and costs and in extending the life of combustion components in burning off-specification or low-quality fuels.

Fleet Management Technology

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

An ongoing 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, which utilizes a computer network, cargo can be booked from a remote terminal, allocated space on a ship, traced during the movement from origin to destination, and freight charges billed to the shipper. Testing was completed for a cargo offering and booking function, and a user group was established to encourage widespread use of the system.

During FY 1984, other new applications were developed and put into operation in the maritime industry. Among these were programs for spare parts control and maintenance management of vessels, the positioning of container equipment to minimize leasing costs, and a diesel propulsion performance analysis system for towboats on the inland waterways.

In addition, a technical and economic analysis of noise control techniques was conducted for small vessels operating on the inland waterways and in the offshore drilling industry.

Work continued during the year on several microcomputer systems for such applications as strategic planning, steam power plant analysis, vessel performance analysis, and cost control. In addition, work was conducted on computer-aided training for Great Lakes pilots and strategic planning for the inland waterways.

New projects awarded under the FY 1984 Cooperative Industry Research Program included research on several other microcomputer-based systems applicable to data communications for inland waterways, a ship design model, and an automated program to provide an assessment of diesel fuel costs and quality on engine performance, maintenance, and repairs.

Ship Performance and Safety

In FY 1984, the 2-year, at-sea tests of copper-nickel hull sheathing panels on the underwater hull of the SS ARCO TEXAS were completed. The experiment showed that two of the four attachment methods tested gave a completely satisfactory performance. Sheathing that was peripherally or slot welded remained tightly in place against the hull under severe mechanical conditions. The copper-nickel panels showed no evidence of biofouling; their surfaces remained virtually smooth.

This project is directed at the development of hull sheathings that will reduce fouling of submerged surfaces and reduce fuel consumption.

In related work, efforts were continued on the development of a voyage monitoring system. This technology would allow ships to obtain timely and accurate measures of fuel consumption attributable to hull roughness and fouling, propeller roughness, propulsion plant operation, ship's ballasting and trim, navigation and steering, and its operation in high winds and heavy seas.

In FY 1984, the Marine Board of the National Research Council, under MARAD sponsorship, completed a study of effective manning of the U.S. merchant fleet. Based on this study, MARAD joined with the industry to initiate two effective shipboard manning projects. Most of this research will be directed toward developing new knowledge of essential shipboard operational tasks and the promotion of cooperative labor-management experiments in organizational and occupational changes aboard ship.

Cargo Systems

During FY 1984, the Sea Shed system—large cargo capsules which enable cellular containerships to carry a full range of oversized cargo, including military cargo, below deck—was installed and successfully tested aboard the auxiliary crane ship KEYSTONE STATE (T-ACS-1).

In a cooperative agreement with Farrell Lines, Inc., the cell guides of two of the company's containerships were strengthened and Sea Sheds installed to test the commercial capabilities of the system. A universal adapter also was developed and successfully tested. This adapter eliminates costly ship modification and allows Sea Sheds to fit easily into any commercial containership.

With MARAD's assistance in FY 1984, five U.S.-flag carriers formed a joint venture called the Cargo Handling Cooperative Program whose purpose is to increase productivity in marine cargo handling through new technology applications. The program, jointly funded by industry and MARAD, completed a simulation model for long-term terminal planning and assessed the technology for adaptation and application. Among the promising applications are microwave container identification equipment, radio frequency transmission of voice and data for real-time container inventory control, laser disc storage of terminal interchange documents, and robotics for accurately aligning the container crane spreader with containers.

Also in FY 1984, a test of "bar code" labelling and identification of containers with laser scanners at port terminals was completed with Navieras de Puerto Rico.

In addition, three carriers are implementing a system, developed under MARAD's cargo-handling program in 1983, for monitoring the temperatures of refrigerated containers from a central location aboard ship.

CAORF

The Computer-Aided Operations Research Facility (CAORF), operated by MARAD at Kings Point, NY, is a high fidelity ship operations 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.

During FY 1984, most of CAORF's work focused on assisting in the design of ports, channels, and harbor improvements. The Panama Canal Commission, the Norfolk, VA, and Mobile, AL, Districts of the U.S. Army Corps of Engineers, and the Florida Department of Transportation were among the sponsors of CAORF simulation research to design optimal

channels which permit safe ship traffic while minimizing the costs of port dredging and maintenance.

The Panama Canal Commission plans to modify both the Gaillard Cut and the Pacific entrance of the canal to accommodate the safe passage of two Panamax-size vessels meeting in those areas. CAORF is in its second year of a comprehensive fast-time and real-time simulation study which will yield recommendations for cost-effective designs of the channel in those areas.

Simulation conducted for the Alabama State Docks Department and the Mobile District Corps of Engineers yielded recommendations for the widening of critical turns which will permit safe passage of deep-draft coal colliers.

In FY 1984, basic research on the validation of ship models also was emphasized. As a result, new procedures for validating ship models have been instituted at CAORF.

In addition to conducting research, the CAORF staff began an in-house conceptual engineering study of the requirements for upgrading the facility. The study will determine what is needed to replace or update CAORF's computers and image-generation equipment to meet the present and projected requirements of the American maritime industry and to sustain the world preeminence of the shiphandling research simulator at Kings Point.

Advanced Ship Systems

MARAD's Advanced Ship Systems Program has three main elements: identification of new or expanding shipping systems which will provide more competitive opportunities for the U.S. merchant marine; development of system concepts which will contribute to the Nation's sealift support capabilities in times of military emergencies; and investigation of advanced technologies which can improve the productivity of the U.S. shipping and shipbuilding industries.

During FY 1984, the Agency continued support for the Marine Board of the National Research Council of the National Academy of Sciences and for the National Academy of Engineering.

MARAD also continued a study of the potential for improving navigation and communications systems for use in the inland waterways and specifically in the Great Lakes and Saint Lawrence Seaway areas. This work is being done through the Transportation Systems Center of DOT.

Additional work was conducted on the feasibility of utilizing State maritime academies to investigate the value of fuel cells and sail-assist devices as ways of reducing energy costs aboard merchant vessels.

Because of their potential for high efficiency and highly automated power generation, fuel cells appear to be attractive for some future auxiliary power applications.

The fitting of sail-assist devices to conventionally powered vessels also can significantly reduce annual fuel costs for some vessels and may justify their initial capital costs.

However, operational data and experience from experimental installations are needed to evaluate the commercial merits of both of these concepts.

MARAD continued to support the Department of Transportation's Small Business Innovative Research (SBIR) program, assisting in the evaluation of 55 SBIR proposals. MARAD will be supporting one of these proposals—research on a low-cost, color-indicator dip stick to monitor the quality of diesel engine lubricating oil.

During FY 1984, work was completed on studies of protective coatings to resist cavitation erosion damage to ships' propellers, centrifugal pumps and other areas where this is a problem. The use of thick polyurethane coatings with suitable primers and adhesives was found to be successful in preventing cavitation erosion and for use as repair coatings over metal surfaces which have experienced damage from cavitation erosion.

Marine Science

The goal of MARAD's Marine Science Program is to improve ship hydrodynamics, structures, and propulsion.

Ship maneuvering remains a central concern. A new instrumentation package—Maritime Coefficient Identification Systems (MARCIS)—has been under development. A prototype of the system, which was designed to measure the maneuvering characteristics of ships, was tested during full-scale trials of a U.S. Coast Guard vessel. Once MARCIS is completed, naval architects will be able to determine the coefficients of maneuvering response equations directly from ship trials. The system is expected to increase the level of confidence in model test predictions for new design, and provide better insight into design features which improve maneuverability.

In this reporting period, MARAD continued its involvement in cooperative ship structural research through the intergovernmental Ship Structure Committee and completed research on the use of tunnel sterns and tandem propellers which, when put to use, are expected to result in significant fuel savings for U.S.-flag ships.

Arctic Shipping

The sixth voyage in a series of MARAD-Coast Guard tests to analyze Arctic shipping conditions and to develop design and operating criteria for ships operating in the Arctic was completed in FY 1984.

Coordinated by MARAD and performed on a U.S. Coast Guard POLAR Class icebreaker, these tests are also supported by the State of Alaska, the Canadian Government, and U.S. companies. Level ice resistance tests were completed on the icebreaker POLAR SEA in January 1984. Instruments on the bow of the vessel measured the structural loads imposed by the ice during these operations.

Over the past 6 years, this program has produced extensive information on ice conditions over potential Arctic tanker routes and their effects on ships' hulls and performance.

Many ice ridges were profiled and ice cores taken in the Beaufort, Chukchi, and Bering Seas, and an historic winter voyage to Point Barrow on the North Coast of Alaska was completed in this reporting period. As a result of these tests, year-round

operations were shown to be feasible in the Bering Sea.

Long-range goals of the joint research include developing design and operating criteria for ships engaged in the year-round transportation of Alaskan natural resources and developing environmental, safety, and marine transportation data to enable the Government to make rational decisions concerning expanding Arctic activities.

University Research

MARAD solicits research proposals each year from the U.S. academic community to bring new perspectives to the problems of the maritime industry and provide new dimensions to its research program.

In FY 1984, projects were undertaken on construction scheduling for mobilization ships, industrial policy for the maritime industry, research on the ultimate strength of ship hulls, port development, ship maneuvering, improved designs of ship sterns, use of fluidized beds in ship propulsion systems, and improved ship production techniques.

Chapter 7

Maritime Labor and Training

In fiscal year 1984, the Maritime Administration continued its program supporting the training of merchant marine officers and supplemental training related to safety in U.S. waterborne commerce. The Agency also continued to monitor maritime labor policies with national and international organizations and to promote sound labor relations.

U.S. Merchant Marine Academy

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

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

The Class of 1984 comprised 108 third mates, 112 third assistant engineers, and 18 graduates who completed the dual deck/engine program. There were 15 women among the graduates. Approximately 83 percent of the 238 graduates found employment in the maritime industry aboard ship or ashore, or were serving on active duty in the U.S. military services.

Average enrollment at the Academy during the year was 1,068.

At the beginning of the 1984–85 school year, the regiment of midshipmen included 93 women—20 of whom were scheduled to graduate in June 1985.

Members of Congress nominated 2,300 constituents for the Class of 1988. A total of 304 appointments were made in FY 1984.

A *Five-Year Academic Plan* and *A Self-Study* were prepared by Academy faculty and staff committees in preparation for a scheduled October 1984 visit by an accreditation review team from the Middle States Association of Colleges and Schools. An accreditation team from the American Board of Engineering and Technology (ABET) was scheduled to join the Middle States Team to review the ABET-accredited program in Marine Engineering Systems at Kings Point.

As a result of increased interest in active duty military careers, the U.S. Marine Corps assigned two representatives to the Academy to instruct midshipmen in leadership and amphibious warfare tactics and to assist with regimental drills.

The Academy initiated a Visiting Professor Program with Plymouth Polytechnic Institute of England in this reporting period. Two British professors taught courses in marine management and naval architecture.

A pilot program sponsored by MARAD, "Master Mariner Readiness Training," was developed and offered at the Academy in FY 1984. A group of active American shipmasters attended a week-long course in the operation of vessels under the National Shipping Authority and Naval Control of Shipping in time of war or national emergency.

State Maritime Academies

MARAD administers financial assistance to six State maritime academies in accordance with the Maritime Education and Training Act of 1980 (Public Law 96–453). The 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, CA; Castine, ME; Buzzards Bay, MA; Traverse City, MI; Fort Schuyler, NY; and Galveston, TX.

Six hundred seventy cadets graduated from the six academies in 1984.

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 in Traverse City) and, if qualified, are commissioned as ensigns in the U.S. Naval Reserve.

After graduation, 67 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.

Public Law 96–453 provides for a mandatory 3-year service obligation in the U.S. merchant marine for subsidized students as a condition to receiving annual Federal student incentive payments of $1,200 each for all graduating classes entering after April 1982. The statute also provides midshipman status in the U.S. Naval Reserve to all eligible students at the State academies.

Under P.L. 96–453 MARAD also provides training vessels to each of the five salt-water academies. The cargo-passenger vessel SANTA MERCEDES was purchased from Delta Steamship Lines, Inc., in FY 1984, and work was begun to convert the vessel for use as a training ship at the Massachusetts Maritime Academy. The 1964-built vessel has been renamed the T.V. PATRIOT STATE and will replace the T.S. BAY STATE, which was severely damaged by fire in 1981.

Regulatory Changes

During FY 1984, the Maritime Administration amended its merchant marine training regulations to reflect declines in the number of U.S.-flag ships and the associated demand for officers in recent years and projections of a continuing oversupply of officers through 1986.

For the second consecutive year, the Agency reduced by 10 percent the size of entering classes at Kings Point. MARAD is implementing these reductions by lowering quotas for States and other geographical areas eligible to send students to the Federal academy.

Supplemental Training

The Maritime Administration's supplemental training program provides classroom instruction and hands-on training in firefighting, damage control, and diesel engines.

During FY 1984, MARAD trained 2,063 maritime personnel in ship and barge firefighting. Participants were mostly U.S. seamen, but included others concerned with maritime fire safety such as U.S. Coast Guard personnel and port city professional firefighters.

MARAD-sponsored firefighting training is offered at the Agency's fire school at Swanton, OH, the U.S. Navy-Military Sealift Command/ MARAD fire training facility in Earle, NJ, and the U.S. Navy fire training installation, Treasure Island, San Francisco.

A damage control training simulator was added to the Earle facility this fiscal year. MARAD-sponsored marine personnel may attend that school on specified weekdays.

A fee of $25 per student training day is charged for MARAD fire training courses.

The Agency's Marine Diesel Continuing Education Program located at the U.S. Merchant Marine Academy provided 101 industry personnel with technical courses in diesel engines, with emphasis on slow-speed diesels, in this reporting period. Slow-speed diesel engine training is a critical element in MARAD's program to promote greater use of diesel engines in U.S.-flag commercial vessels as replacements for less economical and less efficient steam propulsion systems.

Labor Relations

Collective bargaining agreements covering most of the major seafaring unions expired on June 15, 1984. At the end of FY 1984, the Masters, Mates and Pilots, American Radio Association, and the Radio Officers Union had not reached settlements with tanker operators.

However, most maritime labor-management negotiations during the year were concluded with 3-year agreements, which will expire June 15, 1987. Most of the new agreements contain no major wage increases; job security has become a major consideration due to declining employment opportunities.

In January 1984, the International Longshoremen's Association (ILA), representing dockworkers on the East and Gulf Coasts, reached final agreement on a new contract that will expire on September 30, 1986. The agreement provides a wage increase of $1 per hour in each year of the contract.

The International Longshoremen's and Warehousemen's Union, representing dockworkers on the Pacific Coast, signed a new 3-year contract with employers which will expire July 1, 1987, providing for a 16.9 percent wage increase over the life of the contract. There was no interruption of service.

Labor Data

During FY 1984, average monthly U.S. seafaring employment in all sectors (private, Government contract, and Great Lakes) decreased from 20,695 to 19,193, a 7.3 percent decline from FY 1983. (See Table 19.) Meanwhile, the total workforce in selected U.S. commercial shipyards decreased by 1.3 percent, from 106,446 to 105,072, and average longshore employment declined from 34,727 to 32,116, down 7.5 percent.

Table 19: MARITIME WORKFORCE AVERAGE MONTHLY EMPLOYMENT

	Average Monthly Employment in Fiscal Year:	
	1983	1984
Seafaring Shipboard Jobs:	**20,695**	**19,193**
Shipyards[1]:	**106,446**	**105,072**
Production Workers	84,713	82,976
Management and Clerical	21,733	22,096
Longshore:	**34,727**	**32,116**

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

Chapter 8

National Security

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

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 such as commercial shipping crises. They include inactive merchant ships, as well as naval auxiliaries at three locations—James River, VA, Beaumont, TX, and Suisun Bay, CA (See Tables 20 and 21.)

On September 30, 1984, the NDRF consisted of 386 ships. During this fiscal year, 171 vessels were added to the fleet and 90 were withdrawn. Of the latter, 28 ships were scrapped.

The number of ships in the Fleet Preservation Program, which involves conventional preservation, dehumidification, and cathodic protection, decreased from 254 to 244 during the year.

Also during this reporting period, the SS JEREMIAH O'BRIEN was declared a national monument and placed on the National Register as an historic object. The O'BRIEN, which is the last unaltered Liberty ship in operating condition, was also designated a National Historic Mechanical Engineering Landmark by The American Society of Mechanical Engineers. The vessel is berthed in San Francisco and is open to the public.

Ready Reserve Force

The Ready Reserve Force (RRF) is a joint program of MARAD and the U.S. Navy. It is a selected component of the NDRF consisting of vessels which can be activated for sealift operations on 5 to 10 days' notice. There were 45 vessels in this select group as of September 30, 1984. Other NDRF vessels require an average of 4 weeks for activation.

The RRF is being expanded and its procurement and deployment requirements diversified.

Pursuant to a memorandum of understanding with the U.S. Navy, in FY 1984 MARAD purchased 19 U.S.-flag breakbulk vessels which are to be placed in the RRF and retained in either a 5- or 10-day readiness status.

Three RRF vessels were activated in support of Department of Defense operations during this reporting period. The SS CALIFORNIA carried military cargo for Exercise BOLD EAGLE 84 in October and November 1983; the SS PIONEER CRUSADER supported the Military Sealift Command's (MSC) cargo operations in February and March 1984; and the SS WASHINGTON lifted military cargo in June 1984. The three vessels were manned by civilian crews and operated by general agents for a total of 117 days for the MSC.

Also in FY 1984, MARAD entered into a General Agency Agreement with Crowley Maritime Corp. to husband three T–1 tankers, two berthed in the Hawaiian Islands and one in Japan. This is the first such Agency contract award involving a vessel deployed in a foreign country.

Ship Design and Engineering

In FY 1984, on behalf of the Navy, MARAD managed the procurement and oversaw the conversion of the KEYSTONE STATE (ex-PRESIDENT HARRISON) as the first in a new series of 12 auxiliary crane ships (T-ACS). (See also Chapter 1.)

The conversion contract for the second crane ship also was awarded in this reporting period.

T-ACS are self-sustaining, container offloading vessels. Each is being equipped with three sets of twin-boom pedestal cranes with an outreach capable of unloading containerships lacking cargo-handling gear. They will be utilized in military situations in forward areas where cargo-handling facilities are limited, such as in underdeveloped ports or ports damaged by hostilities.

At Fort Story, VA, in September 1984, the KEYSTONE STATE performed successfully in the Joint Logistics Over the Shore (JLOTS) II exercise, a major endeavor of U.S. Armed Forces, other Government Agencies, and the industry which was commended by the Under Secretary of the Navy as the most successful in a recent series of amphibious exercises.

Two RRF ships, the EXPORT LEADER and CAPE ANN, were also activated to participate in JLOTS II as the containership and breakbulk components, respectively.

Also during FY 1984, MARAD:

- Began developing "Ships Loading Characteristics" booklets for all RRF vessels to improve cargo-loading efficiency in emergency call-ups;
- Continued evaluating communications equipment for NDRF vessels and recommending replacements and additions;
- Assisted the State University of New York State Maritime College in performing a stability test on a harbor training vessel and obtaining U.S. Coast Guard approval of the results.

Exchanges For Scrap

Pursuant to section 510(i) of the Merchant Marine Act, 1936, (as amended by Public Law 95–177, approved November 15, 1977) six cargo vessels were traded in to the Government in return for 28 NDRF vessels. The latter vessels were sold for scrap for $9,373,621.

Table 20: NATIONAL DEFENSE RESERVE FLEET—SEPTEMBER 30, 1984

Fleet Sites	Retention[1]	Scrap Candidates	Special Programs	Totals
James River, VA	115	9	25	149
Beaumont, TX	55	0	103	158
Suisun Bay, CA	74	0	5	79
Totals:	**244**	**9**	**133**	**386**

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

Table 21: NATIONAL DEFENSE RESERVE FLEET, 1945–1984

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	304
1964	1739	1984	386

Ship Sales

Other than the exchange program noted above, no Government-owned vessel was sold for scrap or non-transportation purposes during the year.

The cumulative sales of 2,096 vessels from the NDRF (1958–83) returned $168.6 million to the Government.

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 vessels, cargo, 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 1984, there were 1,751 binders outstanding under this program. The law provides that these binders will be effective for 30 days following the automatic termination of commercial insurance.

Outstanding binders on September 30, 1984, included 624 for war-risk hull and machinery insurance, 624 for war-risk protection and indemnity insurance, and 503 for second seamen's war-risk insurance. There were 50 foreign-flag vessels covered in each category except second seamen's, for which 25 were covered.

No binders or policies were outstanding in MARAD's related standby war-risk cargo insurance and builder's risk insurance programs. However, 26 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, 1984, binder fees totaled $1.45 million, and builder's risk insurance totaled $2.58 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 $9.8 million. As of September 30, 1984, assets of the war-risk revolving fund totaled some $12.3 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 two Government-owned tankers and nine privately owned, U.S.-flag tankers under bareboat charter to MSC were insured under this program in FY 1984. After deducting claim payments of $110,740, the net savings to the Navy since inception of the program are estimated to total $2.2 million.

Marine Insurance

MARAD continued to act as the claim agent for Government-owned vessels during FY 1984. At the end of the year, 17 protection and indemnity claims were outstanding, and 6 were in litigation. Total settlement value of all cases was estimated to be $420,000.

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

Table 22 shows marine and war-risk insurance approved in FY 1984.

Emergency Operations

During this reporting period, MARAD monitored threats to worldwide shipping in the Persian Gulf and Red Sea stemming from continuing hostilities between Iran and Iraq.

Working closely with the Departments of Defense and State, in employing the Department of Transportation's AMVER-USMER System, MARAD constantly tracked the location of U.S.-flag merchant

Table 22: MARINE AND WAR-RISK INSURANCE APPROVED IN FY 1984

Kind of Insurance	Total Amount	Percentage	
		American	Foreign
Marine Hull and Machinery	$7,779,155,468	57	43
Marine Protection and Indemnity	[1]		
War-Risk Hull and Machinery	7,129,806,169	55	45
War-Risk Protection and Indemnity	7,129,806,169	55	45

[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.

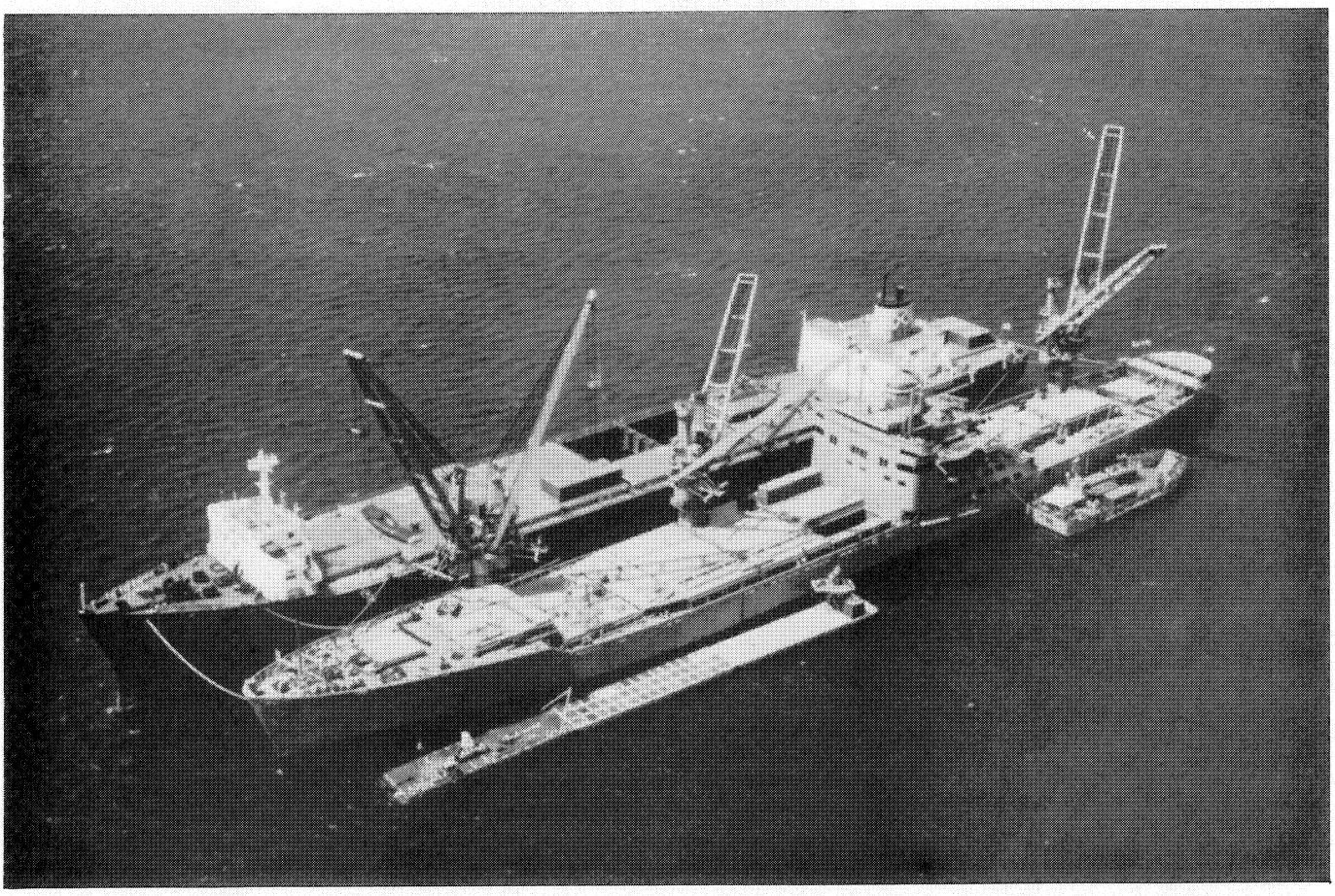
vessels and disseminated warnings to vessels and ship operators, as pertinent.

MARAD initiated an effective program of cooperation among Federal Agencies concerned with maritime piracy and terrorism. Acts of international piracy and terrorism peaked in 1982 and have diminished since then. However, the potential for these acts still exists in many areas of the world, especially in or near some lesser developed countries.

Also in FY 1984, revised NATO plans for wartime shipping operations were presented at a MARAD-hosted training session. More than 100 representatives of NATO's wartime shipping authority participated.

MARAD continued its support of U.S. Joint Chiefs of Staff and NATO readiness programs. Representatives of the Agency participated in several national and international military mobilization and Naval Control of Shipping exercises. MARAD proposed system improvements that will significantly reduce wartime message traffic and enhance responsiveness in the coordination of merchant shipping and naval operations in wartime.

During FY 1984 also, substantially all U.S. tanker operators applied for participation in the revised Voluntary Tanker Agreement. Under that agreement, which was established pursuant to the Defense Production Act of 1950, as revised, tanker owners and operators agree to make tankers and tanker space available on a voluntary basis when needed for the national defense.



The KEYSTONE STATE is the first of 12 auxiliary crane ships designed to assist the U.S. Navy in offloading containerized cargo in military contingencies or other national emergencies.

Chapter 9

International Activities

During fiscal year 1984, the Maritime Administration (MARAD) participated in bilateral maritime discussions with the People's Republic of China, Japan, Brazil, the Philippines, Malaysia, and Iceland as well as a number of multilateral conferences. Through its representatives in London, Athens, Rio de Janeiro, and Tokyo, the Agency continued to assist American maritime and trade interests abroad.

U.S.-China Maritime Agreement

Maritime delegations from the United States and the People's Republic of China met twice in FY 1984.

The Maritime Administrator hosted the Chinese delegation for a Washington meeting November 21–23 and 28–30, 1983. The U.S. objective was to negotiate a mutually beneficial arrangement which, among other things, would resolve cargo and operational problems faced by U.S.-flag operators in the P.R.C. trade.

The negotiations did not produce a new maritime agreement, and the existing one, after being extended for 90 days, expired December 17, 1983.

Another round of negotiations in Beijing April 9–14, 1984, also failed to produce a new agreement.

During calendar year 1983, MARAD monitored the liner cargo moving under the terms of the U.S.-P.R.C. Maritime Agreement. U.S.-flag liner vessels carried 205,907 long tons of cargo in the bilateral trade, while P.R.C. vessels carried 338,325 long tons.

Based on a cargo value formula which reflects comparative carriage adjusted for the value of feeder services, U.S.-flag vessels carried 18 percent by value for the year, while P.R.C.-flag vessels carried 33 percent. (See also Chapter 4.) Without the feeder adjustment U.S.-flag vessels carried 21 percent and P.R.C.-flag vessels carried 22 percent.

Maritime Discussions with the Philippines

Maritime discussions between the United States and the Philippines were held in Manila in December 1983. Issues discussed at these talks included the cargo-sharing policy of the Philippines in the liner trade and the approaches of the two countries to government-impelled cargo. Since that time, the Republic of the Philippines has unilaterally withdrawn its cargo-sharing laws.

Maritime Discussions with Brazil

In October 1983, the Maritime Administrator led an interagency delegation which met with Brazilian counterparts in Rio de Janeiro to renegotiate the U.S./Brazil Equal Access Agreement.

This agreement governs, among other things, the access of each party's national flag lines to government-controlled cargo moving in the bilateral trade. The discussion led to a modification and extension of the agreement until December 31, 1985.

Maritime Consultations with Japan

In April 1984, MARAD officials participated in shipping consultations in Tokyo, Japan, as part of an interagency delegation. The purpose of the consultations was to establish a dialog with Japan on bilateral and multilateral shipping issues including Japan's intention to ratify the U.N. Code of Conduct for Liner Conferences, constraints on U.S.-flag container and intermodal movements in Japan, and carriage of tobacco to Japan. These discussions produced some progress in the intermodal area and a clearer Japanese appreciation of U.S. concerns on the other issues.

Maritime Discussions with Iceland

The Maritime Administration participated in an interagency delegation which held talks with the Icelandic Government in July 1984 on bilateral liner shipping matters. The talks clarified issues arising from the entry of a U.S.-flag carrier into the U.S.-Iceland trade and its carriage of U.S. military cargo.

Maritime Discussions with Malaysia

Agency officials also participated in discussions of bilateral shipping issues in Washington April 24–26 with representatives from the Malaysian government. During the discussions, the delegations exchanged working drafts of a maritime agreement but established no dates for future meetings.

Other International Conferences

During FY 1984, the Agency represented the U.S. Government at the XVth meeting of the Permanent Technical Committee on Ports (PTCP) of the Organization of American States (OAS) in Ixtapa, Mexico. A MARAD official served as Chairman of Committee III on Port Training of the PTCP and reported on the progress of the reestablished Puertos Amigos Program, a joint effort with the OAS and the American Association of Port Authorities.

As of September 30, 1984, MARAD had received requests from six nations to train more than 200 Latin American and Caribbean personnel at U.S. ports.

Also in the area of port training, MARAD, in conjunction with the U.S.

Coast Guard and the Environmental Protection Agency, sponsored a one-week Marine Pollution Response Seminar in Tampico, Mexico, for OAS members. In conjunction with the OAS, the Maryland State Police and the Port Authority of New York and New Jersey, the Agency conducted a one-week Port Safety and Security Seminar in Bridgetown, Barbados, and in Puerto Limon, Costa Rica.

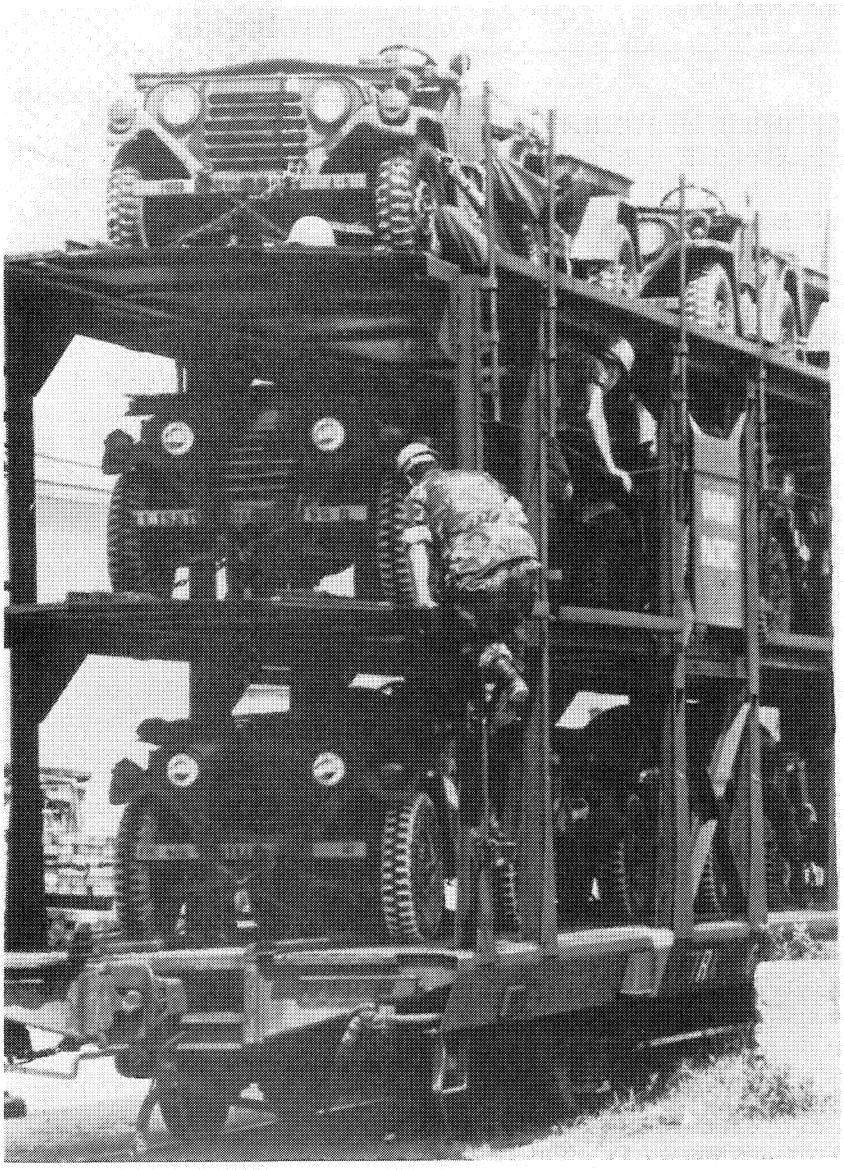
The Agency also obtained technical assistance from the U.S. Army Corps of Engineers regarding the organization and presentation of a port dredging seminar for the Port of Buenos Aires, Argentina.

Also during this reporting period, MARAD provided technical assistance to the U.S. Coast Guard in the promulgation and implementation of the rules governing the establishment of waste reception facilities in U.S. ports as called for under the International Convention on the Preservation of Marine Pollution from Ships (MARPOL).

A special U.S. interagency team visited Egypt to resolve problems associated with the movement of cargoes generated by the U.S. Agency for International Development.

Also in FY 1984, a MARAD official was a member of the U.S. delegation to the United Nations Conference of Plenipotentiaries on the Conditions for Registration of Ships in Geneva, Switzerland. The conference was scheduled to resume in Geneva in January 1985 to consider the adoption of an international agreement concerning the conditions upon which nations may accept vessels on their national registers.

In addition, MARAD was represented in the U.S. delegation to the regularly scheduled Paris meetings of the Maritime Transport Committee (and its subordinate bodies) of the Organization for Economic Cooperation and Development (OECD). The meetings pursued two principal themes in FY 1984: coordination of developed country positions for meetings within the United Nations Conference on Trade and Development (UNCTAD) and development of a common statement of OECD members' shipping policy vis-a-vis nonmembers (developing countries and state trading countries), as well as reevaluation and restatement of intra-OECD shipping policy.



U.S. military personnel secure equipment in preparation for maneuvers in the REFORGER exercises in fiscal year 1984.

Consultative Shipping Group

During FY 1984, MARAD representatives served as members of a negotiating team which met three times with the Consultative Shipping Group (CSG), comprised of government representatives of the principal European maritime nations and Japan.

The discussions attempted to develop the framework of a U.S./CSG agreement to preserve competitive access to cargo in liner trades once the U.N. Liner Code comes widely into use.

The discussions up to the end of FY 1984 had not fully reconciled differing competitive and regulatory regimes in participating countries. Further discussions were contemplated early in 1985.

Chapter 10

Administration

The administrative actions taken in support of the mission and programs of the Maritime Administration (MARAD) in fiscal year 1984 are summarized below.

Maritime Subsidy Board

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

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

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

The MSB met 25 times in FY 1984. It considered and acted on 126 items and issued 11 formal opinions, rulings, and orders.

MARAD also published 37 notices in the *Federal Register* on such matters as those requiring statutory hearings and the development and adoption of rules and regulations to implement the Merchant Marine Act, 1936, as amended.

The Secretary of MARAD, as Freedom of Information Act (FOIA) Officer, received and processed 307 FOIA requests.

During FY 1984, the Agency took several actions affecting the carriage of U.S. preference cargoes and Military Sealift Command cargoes by subsidized dry-bulk vessels.

In January 1984, MARAD issued an interim rule in Docket A–132 governing the evaluation of bids submitted to Federal Agencies by subsidized U.S.-flag bulk vessel operators for the carriage of dry-bulk preference cargo.

The purpose of this rule is to ensure equitable competition between subsidized and nonsubsidized carriage of dry-bulk preference cargo and to enable the Government to obtain the carriage of such preference cargoes at the lowest cost per ton.

On May 24, 1984, the MSB approved the application of Moore McCormack Bulk Transport, Inc., and other subsidized operators of bulk vessels to allow charters of these vessels to the Military Sealift Command at fair and reasonable rates without subsidy.

Additionally, on August 23, 1984, the MSB granted the application of Lykes Bros. Steamship Co., Inc., for four recently acquired Express class containerships to operate in the Far East trade (Trade Route Nos. 29 and 17/29). These vessels will provide a smooth transition from Lykes' current deployment of two roll-on/roll-off (RO/RO) vessels in the Far East trade to its anticipated service with six new containerships of 2,500 twenty-foot-equivalent units (TEU) each, which will be built in two Japanese yards. This service, to be inaugurated in 1987, will operate without subsidy.

Legal Services, Legislation, and Litigation

The Chief Counsel of the Maritime Administration advises the Administrator and all MARAD offices on all legal issues associated with the planning and operation of the Agency's programs. Legal assistance is provided on rulemakings, legislation, and litigation affecting ship financing guarantees, subsidy contracts, defense reserve fleet activities, vessel transfers, and other MARAD programs.

The Chief Counsel provides legal support services for the procurement, personnel and public information activities conducted at MARAD headquarters, in regional offices, and at the U.S. Merchant Marine Academy; and assistance to the Department's General Counsel on legal issues arising at the Department level which are related to or impact on MARAD programs.

In FY 1984, MARAD was involved in a number of significant rulemakings. The Agency reviewed public comments received in response to a proposed rulemaking and pursued the preparation of a final rulemaking in connection with regulations on economic and financial standards for evaluating Title XI Ship Financing Guarantee Program applications and criteria for making Title XI debt service advances. MARAD also assisted in the preparation of the Department's comments on many Federal Maritime Commission rulemakings to implement the Shipping Act of 1984.

With regard to the movement of preference cargoes by the Agency for International Development (AID), the Chief Counsel prepared a legal opinion which concluded that a proposed AID policy change designed to exclude Great Lakes cargoes in determining compliance with the Cargo Preference Act of 1954 was not in accord with the law.

In the second session of the 98th Congress there was increased activity on bills proposed by or of primary interest to the Maritime Administration. The Office of the Chief Counsel drafted legislation and related documents, analyzed newly introduced bills, and prepared testimony and departmental reports.

The legislative highlight of the session, however, was the enactment of the Shipping Act of 1984. This landmark legislation greatly simplifies the regulation of ocean common carriers operating in U.S. foreign commerce, provides more evenhanded treatment for U.S.-flag carriers competing with foreign-flag carriers in these trades, and will be of considerable benefit to U.S. exporters and importers.

Legislation authorizing and appropriating funds for the Agency in FY 1985 also was enacted.

Another significant legislative action was enactment of Public Law 98–595, which grants the Secretary additional flexibility in administering

Tugs maneuver Sea-Land Service containership alongside pier.

the Title XI program through authority to assume obligations after an obligor defaults and which provides more stringent criteria for use in evaluating guarantee applications.

During FY 1984, the Title XI Program reflected continued economic difficulties in several segments of the maritime industry, most notably in energy-related offshore drilling and inland waterway operations. The number of foreclosure actions initiated to protect the Government's interests increased, as did the complexity of pursuing these actions under the Bankruptcy Code, which significantly increased the advisory and litigation workload of the Chief Counsel.

Approximately $177 million of new Title XI guarantee commitments were processed, and legal services were provided for numerous closings and program and contractual requirements.

The Operating-Differential Subsidy (ODS) Program received continued attention as the Agency pursued efforts to simplify and improve administrative and contractual processes.

The number 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 continued to increase. MARAD is developing a computerized management system to track the caseload and provide litigation support to the Department of Justice in processing and defending against these claims.

Management Initiatives

During FY 1984, MARAD established a new Office of External Affairs which replaced the Office of Public Affairs. This office is responsible for assisting the Maritime Administrator with liaison with the shipping industry, public relations aspects of new and current maritime programs, intergovernmental affairs, and congressional matters. This organizational change strengthens MARAD's public affairs and congressional relations activities.

In May 1984, the Office of Financial Management, under the Office of the Associate Administrator for Policy and Administration, was abolished and replaced by a new Office of Accounting. At the same time, the new Office of Financial Approvals was established under the Associate Administrator for Maritime Aids. These changes were made to bring together all activities associated with administering the ODS, Title XI, and Capital Construction Funds programs.

Audits

During FY 1984, DOT's Office of the Inspector General submitted final internal audit reports to MARAD on

Administration of Reimbursable Agreements; Government-Owned Quarters at the U.S. Merchant Marine Academy; University Research Program; Management of Real Property in the New York City Area; Financial Management Operations, U.S. Merchant Marine Academy; Review of Maintenance and Repair Costs for Subsidy Approvals; Monitoring of Vessel Repairs; and *James River Reserve Fleet.* The Agency generally agreed with the findings contained in the reports and took appropriate action.

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

Information Management

MARAD continued its expansion of information resource management technology in the administration and support of Agency programs. A modern office automation system was requested to replace older, limited word-processing stations throughout the Agency, and additional microcomputers were installed to improve interagency communication. New and significantly upgraded information processing equipment was installed at the U.S. Merchant Marine Academy, and new systems were developed for the academic and administrative areas.

A minicomputer was also installed in the MARAD Operations Center for wartime or emergency planning use and for a new accounting system. Support of MARAD's national defense role was increased with the conversion to the new equipment, and the information base for security plans and the security of the system was improved.

Waterborne trade information was made more accessible to program offices in FY 1984 through systems upgrading. The methodology for calculating foreign-flag competition data for payment of subsidies was modified. As a result, this information can now be available within approximately 6 months, resulting in more timely financial analyses and development of other related trade information.

Information management techniques especially suited for analyses of domestic waterborne trade and competing transportation modes were instituted in this reporting period.

Personnel

Employment in the Maritime Administration declined from 1,066 to 1,018 in FY 1984. The reductions were accomplished by attrition.

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.

Five upward mobility positions were established.

Also in FY 1984, 24 MARAD employees received high honors. Four Silver Medals, 13 Bronze Medals, 1 Valor, 1 EEO, and 5 Secretary's Awards for Excellence were approved. Performance awards went to 106 Agency employees—34 quality step increases and 72 special achievement awards.

Safety Program

MARAD's Medical Surveillance Program of the "Action Plan for the Control of Asbestos Exposures in MARAD Programs" provides preplacement, fit-for-duty determinations, and preseparation examinations in addition to periodic medical examinations to designated MARAD employees exposed or potentially exposed to hazardous substances or conditions such as asbestos, lead, or excessive noise. Employees assigned to MARAD Headquarters, the Beaumont, James River, and Suisun Bay National Defense Reserve Fleets (NDRF), and the Central and Western Region offices were provided medical examinations.

In conjunction with the Medical Surveillance Program, the Agency also provides NDRF sites and the U.S. Merchant Marine Academy with industrial hygiene services to conduct periodic surveys of the facilities and to target all safety and health hazards.

The MARAD Safety Officer, with assistance from the Department, also conducts safety and health inspections of MARAD work sites.

MARAD is currently providing an "Asbestos Safety Course." Its objectives are to develop trained workers and supervisors who are capable of recognizing potentially dangerous asbestos hazards in the workplace, who are cognizant of correct work practices and protective measures to prevent exposure to and release of asbestos, and who know how to provide respiratory protection.

Installations and Logistics

Real Property

At the end of FY 1984, the Maritime Administration's real property included National Defense Reserve Fleet sites at Suisun Bay, CA, Beaumont, TX, and James River, VA; a warehouse at Kearney, NJ; the U.S. Merchant Marine Academy at Kings Point, NY; and the Wilmington, NC, Maritime Facility.

Facilities for training maritime firefighters are operated at Earle, NJ, and Treasure Island, CA, under MARAD agreements with the U.S. Navy; by Delgado College at New Orleans, LA; and by MARAD at Toledo, OH.

Regional offices are maintained in New York, NY; New Orleans, LA; Chicago, IL; and San Francisco, CA. Maritime Development Offices are maintained in Long Beach, CA; Cleveland, OH; Seattle, WA; Houston, TX; Portland, OR; and the four regional headquarters.

The Agency also maintains the National Maritime Research Center at Kings Point, NY, and Ship Management Offices in Norfolk, VA; Cleveland, OH; and New York, NY.

During this reporting period, MARAD's Hoboken, NJ, terminal, pursuant to Public Law 97–268, was transferred to the City of Hoboken for the fair market value of the property.

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 year totaled $433.6 million. This included $371 million in operating-differential subsidy and construction-differential subsidy, $32.1 million for administrative expenses, $9.3 million for research and development, $10.5 million for maintenance and preservation of reserve fleet vessels, $15 million for financial assistance to State maritime academies, and $18.7 million for Maritime Training Programs.

MARAD received $23 million in other operating income, net of expenses.

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

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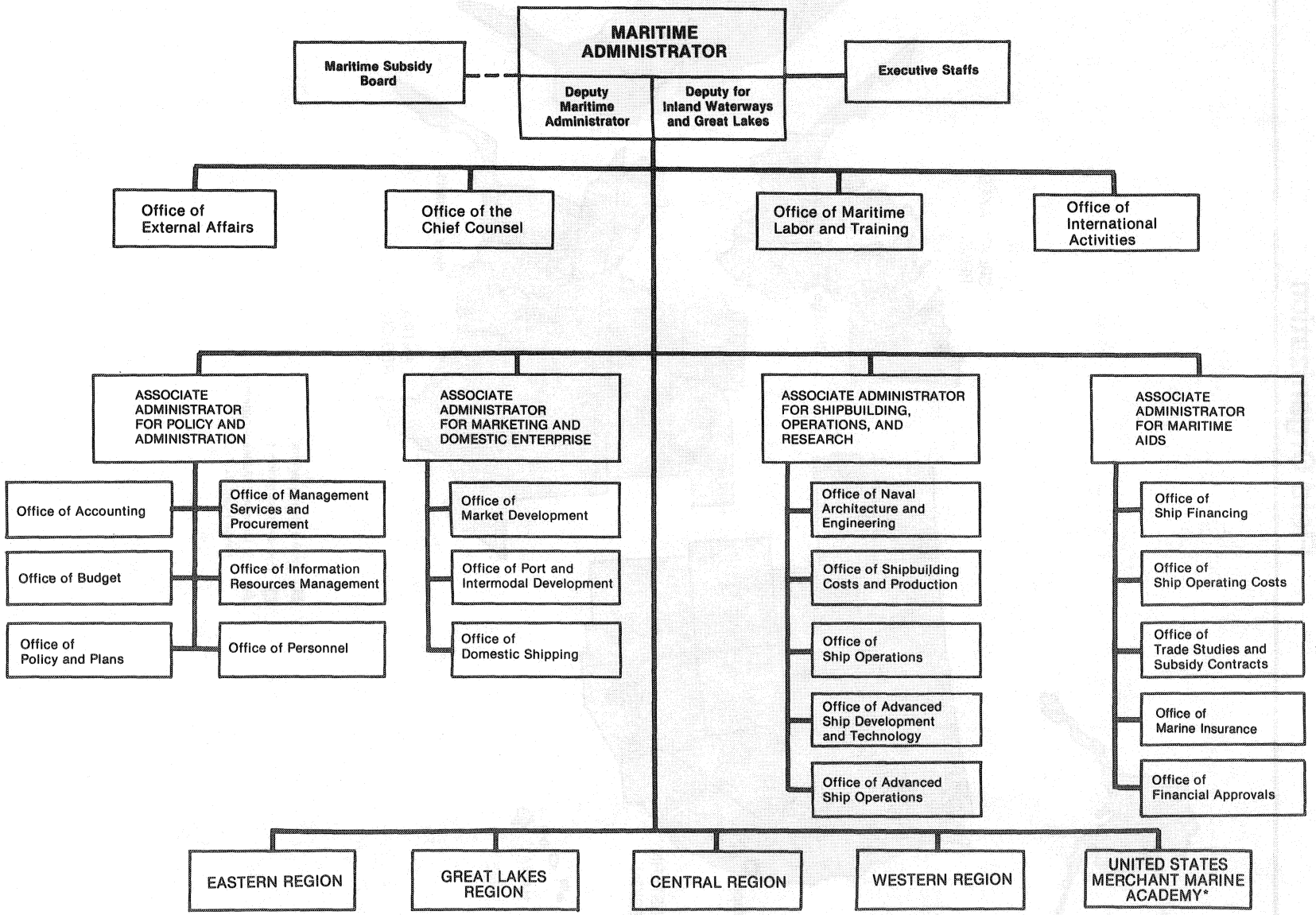
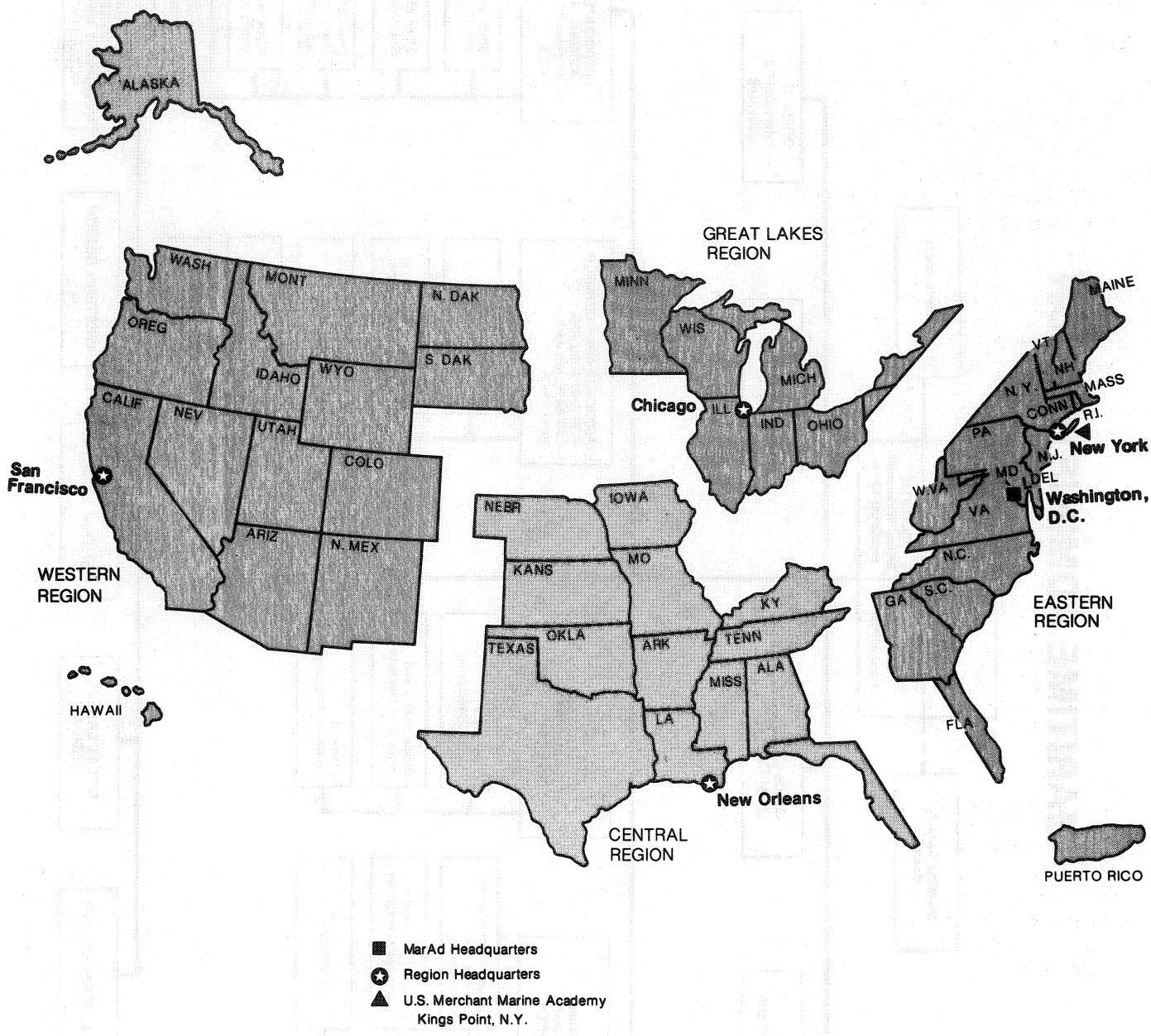
MARITIME ADMINISTRATION



* Kings Point, N.Y.

Maritime Administration

Field Organization



FINANCIAL STATEMENTS

U.S. Department of Transportation—Maritime Administration

Exhibit 1. Statement of Financial Condition

September 30, 1983, and September 30, 1984

ASSETS	September 30 1984	1983
Selected Current Assets		
Funded Balances with Treasury:		
Budget Funds	$117,357,549	$198,103,414
Deposit Funds	986,981	517,506
Allocations from Other Agencies	—	—
Budget Clearing Accounts	3,218	—
	118,347,748	198,620,920
Federal Security Holdings	158,428,000	181,672,109
Accounts Receivable:		
Government Agencies	32,487,669	23,675,730
The Public	25,886,071	11,576,570
Allowances (–)	– 5,554,513	– 4,208,033
	52,819,227	31,044,267
Advances To:		
Government Agencies	—	—
The Public	181,771	105,690
	181,776	105,690
Total Selected Current Assets	**$329,776,746**	**$411,442,986**
Loans Receivable:		
Repayment in Dollars	270,004,657	221,996,430
Allowances (–)	– 67,289,692	– 54,168,112
	202,714,965	167,828,318
Inventories:		
Raw Materials and Supplies	4,519,188	26,235,782
Real Property and Equipment:		
Land	5,204,190	6,400,488
Structures and Facilities	75,261,746	40,106,333
Equipment and Vessels	1,264,492,481	1,232,750,344
Leasehold Improvements	92,119	92,119
Allowances (–)	– 1,185,887,879	– 1,164,379,670
	159,162,657	114,969,614
Other Assets:		
Works-in-Process—Other	18,969,471	18,969,472
Material and Supplies	822,162	827,049
Non-Current Assets	32,303,600	11,903,395
Notes Receivable	26,698,894	28,816,438
Allowances (–)	– 124,353	—
	78,669,774	60,518,354
Total Assets	**$774,843,330**	**$780,995,054**

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

FINANCIAL STATEMENTS

U.S. Department of Transportation—Maritime Administration

LIABILITIES	September 30 1984	September 30 1983
Selected Current Liabilities (Note 2)		
Accounts Payable (Including Funded Accrued Liabilities):		
Government Agencies	$ 11,177,914	$ 4,152,370
The Public	37,229,499	61,248,647
	48,407,413	65,401,017
Advances Form:		
Government Agencies	35,014,282	—
The Public	16,593,393	25,543,816
	51,607,675	25,543,816
Total Selected Current Liabilities	**$100,015,088**	**$ 90,944,833**
Deposit Fund Liabilities	986,981	517,506
Unfunded Liabilities:		
Accrued Annual Leave	2,919,651	2,973,427
Other Liabilities:		
Vessel Trade-In Allowance and Other Accrued Liabilities	28,281,139	14,579,472
Total Liabilities	**$132,202,859**	**$109,015,238**
Government Equity		
Unexpended Budget Authority:		
Unobligated	188,796,778	209,366,138
Undelivered Orders	90,066,123	65,954,258
	278,862,901	275,320,396
Unfinanced Budget Authority (–):		
Unfilled Customer Orders	–50,088,223	–9,314,016
Contract Authority	—	–53,974,267
	–50,088,223	44,660,251
Invested Capital	413,865,793	351,999,169
Total Government Equity	**$642,640,471**	**$671,979,816**
Total Liabilities and Government Equity	**$774,843,330**	**$780,995,054**

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, 1983, and September 30, 1984

	Years Ended September 30	
	1984	1983
OPERATIONS OF THE MARITIME ADMINISTRATION:		
Net Costs of Operating Activities		
Reserve Fleet Programs:		
Maintenance and Preservation	$ 10,527,910	$ 8,801,333
Maritime Training Program	18,738,952	18,772,553
Direct Subsidies and National Defense Costs:		
Operating-Differential	361,633,950	309,913,463
Construction-Differential	9,395,336	50,210,984
	371,029,286	360,124,447
Administrative	32,062,252	25,415,536
Research and Development	7,166,447	19,110,464
Financial Assistance to State Marine Schools	15,083,663	9,381,273
	54,312,362	53,907,273
Other Operating Income Net of Expenses	25,456,298	7,484,872
Net Cost of Maritime Administration	**$480,064,808**	**$449,090,478**
OPERATIONS OF REVOLVING FUNDS (– Income):		
Vessel Operations Revolving Fund	$ – 18,164,655	$ – 4,258,874
War-Risk Revolving Fund	– 885,190	– 838,918
Federal Ship Financing Fund	– 27,386,592	– 41,966,353
	– 46,436,437	– 47,064,145
Net Cost of Combined Operations	**$433,628,371**	**$402,026,333**

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

Notes to Financial Statements—September 30, 1984, and September 30, 1983

1. The preceding financial statements included 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.

2. The Maritime Administration was contingently liable under agreements guaranteeing obligations or insuring mortgages and construction loans payable to holders or lenders totaling $7,045,580,000 on September 30, 1984, and $7,319,886,000 on September 30, 1983. Commitments to guarantee additional obligations amounted to $461,624,000 on September 30, 1984, and $521,573,165 on September 30, 1983. U.S. Government securities and cash of $36,888,693 on September 30, 1984, and $67,409,850 on September 30, 1983, were held in escrow by the Government in connection with the guarantee of obligations or the insurance of loans and mortgages which were financed by the sale of bonds in the securities market. There were no conditional liabilities for prelaunching War-Risk Builder's Risk Insurance on September 30, 1984.

3. On September 30, 1984, the U.S. Government securities which had been accepted from vessels owners, charterers, subsidized operators, and other contractors as collateral for their performance under contracts amounted to $180,000.

Appendix I: MARITIME SUBSIDY OUTLAYS—1936–1984

Fiscal Year	New Construction CDS	Reconstruction CDS	Total CDS	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
1984	13,694,523		13,694,523	384,259,674	397,954,197
Total	**$3,563,715,715**	**$264,904,682**	**$3,828,620,397**	**$7,312,019,240**	**$11,140,639,637**

[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, 1983 and 1982 (Amounts Stated in Thousands of Dollars)

ASSETS	**1983**	**1982**
Current Assets:		
Cash	$ 60,534	$ 45,810
Marketable Securities	106,020	90,998
Accounts Receivable	440,871	435,762
Other Current Assets	57,960	50,605
Total Current Assets	$ 665,385	$ 623,175
Restricted Funds	222,387	233,534
Investments	40,962	50,094
Property and Equipment (Net of Depreciation)	2,013,077	2,163,554
Other Assets	167,106	103,660
TOTAL ASSETS	**$3,108,917**	**$3,174,017**
LIABILITIES AND STOCKHOLDERS' EQUITY		
Liabilities:		
Current Liabilities:		
Notes Payable	$ 115,159	$ 94,956
Accounts Payable	217,919	249,338
Other Current Liabilities	394,840	315,301
Total Current Liabilities	727,918	659,595
Long-Term Debt	1,257,564	1,407,729
Other Liabilities	342,542	204,307
Deferred Credits	47,353	38,349
Total Liabilities	$2,375,377	$2,309,980
Stockholders' Equity:		
Invested Capital	340,277	319,361
Retained Earnings	393,263	544,676
Total Stockholders' Equity	$ 733,540	$ 864,037
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	**$3,108,917**	**$3,174,017**

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

Statement B—Combined Condensed Income Statement for the Years Ending December 31, 1983 and 1982 (Amounts Stated in Thousands of Dollars)

	1983	1982
Shipping Revenue	$2,653,299	$2,817,409
Operating-Differential Subsidy	354,675	339,560
Other Shipping Operations Revenue	125,255	105,361
Total Revenue from Shipping Operations	$3,133,229	$3,262,330
Vessel Expense	$1,289,084	$1,298,719
Voyage Expense	1,264,589	1,155,144
Total Expense of Shipping Operations	$2,553,673	$2,453,863
Gross Income from Shipping Operations	$ 579,556	$ 808,467
General and Administrative Expense	378,959	372,137
Depreciation and Amortization Expense	114,958	117,218
Interest Expense	137,513	142,289
Shipping Operations Net Profit	(51,874)	176,823
Other Income	73,594	87,270
Other Deductions	(17,618)	(141,374)
Net Income Before Income Taxes	$ 4,102	$ 122,719
Provision for Income Taxes	(10,719)	(23,144)
Net Income After Income Taxes	$ (6,617)	$ 99,575
Extraordinary Items	(16,517)	58,456
NET INCOME	**$ (23,134)**	**$ 158,031**

Project	Task	Vendor	Contract Number	Amount
	Advanced Ship Development			
Shipbuilding Research:				
Marine Coating Performance	To examine improved methods of surface preparation and coating of marine hull forms and structures.	David Taylor Naval Ship Research and Development Center, Bethesda, MD	400–47006	$ 57,280
Shipbuilding Facilities Improvement*	To develop and plan the implementation of more efficient equipment and facilities and improved arrangements for the flow of production items in U.S. shipyards.	Avondale Shipyards, Inc. New Orleans, LA	41044	561,848
Shipbuilding Production Aids*	To concentrate on the overall ship building production system and develop new construction techniques and advanced building technologies that will provide requisite methods in productivity, accuracy control, employee involvement and safety.	Todd-Pacific Shipyards Corp. San Pedro, CA	41029	390,000
Shipbuilding Design/ Production Integration*	To focus on ship design techniques and develop more efficient production methods and integrate ship design with the construction process.	Newport News Shipbuilding Newport News, VA	41043	515,000
Shipbuilding Standards*	To develop national shipbuilding standards for ship construction and establish a review process to transfer U.S. Navy specifications to equivalent commercial shipbuilding standards.	Bath Iron Works Bath, ME	41030	355,237
Welding Improvement*	To develop advanced welding technology applications in specialized ship construction.	Newport News Shipbuilding Newport News, VA	41028	545,000
Shipbuilding Industrial Engineering*	To examine the complexities of systematic industrial engineering methods and plan the implementation of advanced industrial engineering concepts in planning, ship loading, methods engineering, and manpower estimating/ control.	Bath Iron Works Bath, ME	41031	352,437
Shipbuilding Education and Training*	To develop a program to provide training in productivity and improved shipbuilding techniques for skilled trades, middle management, and preentry professionals.	University of Michigan Ann Arbor, MI	41045	470,000

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Shipbuilding Surface Preparation and Coatings*	To develop methods and plans to improve blasting and painting techniques for preparing steel used in shipbuilding.	Avondale Shipyards, Inc. New Orleans, LA	41042	$499,000
Shipbuilding Flexible Manufacturing*	To examine the potential utilization of robotics and automation production capabilities in modern shipbuilding industrial construction.	Todd Pacific Shipyards San Pedro, CA	30028	340,000
Human Resources Program*	To examine shipbuilding technologies involving human resources management practices and to concentrate new effort to establish problem solving worker teams, innovative organization structure and worker involvement in the shipbuilding organization structure.	Bethlehem Steel Corp. Bethlehem, PA	41027	225,000
British Welding Institute	MARAD's share of the Department of Transportation's membership in the British Welding Institute.	U.S. Department of Transportation Washington, DC	400-49003	8,025
	Advanced Fleet Technology			
Ship's Machinery and Outfitting:				
Assessment of Coal-Fired Ship Performance	To obtain data generated on the performance and operation of coal-fired vessels presently in service as an aid to improving design of future coal-fired vessels.	Baham Corp. Columbia, MD	4-2476	16,293
Technical Data Files	To arrange for the transfer of technical data files on a prototype high performance planetary marine gear system developed under a cooperative industry/MARAD contract.	Curtiss-Wright Corp. Woodbridge, NJ	4-2608	5,600
Planetary Marine Transmission	Arrange for the disposition of Government property (planetary gear elements).	Curtiss-Wright Corp. Woodbridge, NJ	9-00026	9,200
Heavy Fuel Capability of Marine Diesels*	To provide technical support in the application of coatings to marine diesel engine combustion system components and to evaluate engine performance using blended marine diesel fuel.	U.S. Department of Energy Oakland, CA	400-49002	200,000
Marine Diesel Propulsion Systems	To identify technology that will permit the operation of high and medium speed diesels using heavy blends of marine fuel and evaluate the fuel performance.	Seaworthy Systems Inc. Essex, CT	41005	342,500

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
		Maritime Technology		
Marine Science:				
Ship Structures Committee	MARAD's cost-share to participate in the Ship Structures FY 1985 Program.	U.S. Coast Guard Washington, DC	400–47011	$ 33,200
Ship Structures Committee	MARAD's cost-share to participate in the Ship Structures FY 1984 Program.	U.S. Coast Guard Washington, DC	400–49004	150,000
Ship Dynamic Performance Control	To develop an onboard instrumentation system for collecting and processing accurate data on the maneuvering of large ships.	Systems Control Technology Palo Alto, CA	01092	126,188
Trafficability Tests 1984 Summer Deployment*	To continue operating under heavy ice conditions to collect environmental and structural design data and other critical design/maneuvering data.	Arctec, Inc. Columbia, MD	41032	559,831
Arctic Trafficability Testing Commercial Ice-Breaking Vessels*	To cover costs and overhead rates allowed in Government audit.	Arctec, Inc. Columbia, MD	10023	67,595
Operational Assessment Of Commerical Ice-Breaking Vessels*	To collect environmental and ship performance data aboard a USCG ice-breaker in the Bering Sea.	Arctec, Inc. Columbia, MD	41008	125,323
MARAD Systematic Series Edit*	To consolidate and edit the MARAD Systematic Series data on ship resistance maneuvering.	Tracor-Hydronautics, Inc. Laurel, MD	41010	77,000
Torsional Strength of Longitudinal Marine Structures	To evaluate and extend the present methods of analyzing ship structures and conduct model tests of certain analyses.	Lehigh University Bethlehem, PA	41002	49,990
Arctic Research	MARAD's share of operational support of icebreaker operations to conduct the FY 1983 Arctic Commercial Trafficability Tests.	U.S. Coast Guard Washington, DC	400–39006	783,479
Industrial Policy for the Maritime Industry	To discuss current maritime industry policies and identify alternatives for the period 1985–1995 and to provide a management tool for industry and government policymakers.	Baruch College The City University of New York New York, NY	41001	39,582
Ship Hull Ultimate Strength	To conduct an experimental program to investigate the linear and nonlinear behavior of a ship hull and to determine the ultimate collapse movement employing large scale models.	University of California Berkeley, CA	41012	44,458

* Cost Shared

Project	Task	Vendor	Contract Number	Amount
YAW/ROLL Design for High-Speed Containership	To investigate the robust, multi-variable and adaptive control issues related to course-keeping control of containerships where coupling between roll and yaw motions is significant.	University of Illinois Urbana, IL	41013	$ 37,245
Hydrodynamic Ceofficients For Maneuvering Simulation Models	To evaluate and conduct at-sea test of maneuvering trial data developed under research, for validating simulation model maneuvering.	Massachusetts Institute of Technology Cambridge, MA	41014	49,955
Assessment of Socio-Economic and Technological Changes on Future U.S. Port Development	To develop a decision network model to assist in determining the impact of socioeconomic and technological change on port productivity, effectiveness and costs with respect to the ports' role in integrated surface transportation systems.	Massachusetts Institute of Technology Cambridge, MA	41015	46,906
Construction Planning and Manpower Schedules in U.S. Shipyards	To conduct a comprehensive examination of construction plans and manpower schedules for building five selected vessels in a U.S. shipyard as compared to identical construction in certain foreign shipyards.	University of Michigan Ann Arbor, MI	41016	49,774
Calculations of Hydrodynamic Forces and Yaw Moment for Shiphandling Performance Prediction	To develop equations to accurately predict all the hydrodynamic force and moment components of merchant ships as a function of vessel geometry and motion variables.	Stevens Institute of Technology Hoboken, NJ	41017	38,734
Potential Revenue Sources for Inland Waterway Ports to Match Federal Maintenance Costs	To develop a comprehensive set of potential revenue sources, processes that can be used by the port industry to analyze individual conditions and problems and procedures for administering a program for collecting and managing their revenue.	University of Tennessee Knoxville, TN	41018	53,623
Acceptance Sampling Procedures for U.S. Shipyards	To develop an acceptance sampling system for the products purchased by U.S. shipyards from other manufacturers and to evaluate the system in relationship to the effect of accuracy control on productivity.	University of Washington Seattle, WA	41019	60,000
Wave-Induced Rudder Stock Torque	To examine data obtained from the five formed single screw designs taken from merchant vessel operation and develop a hydrodynamic design method to assist ship designers achieve a well-balanced stern system.	Webb Institute for Naval Architecture Glen Cove, NY	41020	39,430

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Performance Characteristics of a Coal-Fired Fluidized Bed Superheater	To adapt a fluidized bed for firing with coal and analyze the combustion under a simulated ship motion.	Webb Institute of Naval Architecture Glen Cove, NY	41021	$21,020
Port Development to Serve Incinerator Ships	To examine state and local regulations and institutional impediments to port development to serve incinerator ships.	Massachusetts Institute of Technology Cambridge, MA	41022	49,984
Raked Barge Model Test	To obtain data to conduct model tests of the raked hull barge.	Webb Institute of Naval Architecture Glen Cove, NY	4-2276	3,000
		Agency Support		
Market Analysis:				
Grain Marketing and Transportation Study	To cost-share an update of origin/destination data of the inland movement of U.S. grain.	Federal Railroad Administration Washington, DC	400-47010	5,000
Advanced Ship Systems:				
Propeller's '84	MARAD's cost-share to support the Society of Naval Architects and Marine Engineers, Virginia Beach, Va., symposium "Propellers '84," May 15-16, 1984.	Society of Naval Architects and Marine Engineers New York, NY	4-2392	5,000
Small Business Innovative Research	To finance MARAD's share of the Department of Transportation's Small Business Innovative Research program for Fiscal Year 1984.	Transportation Research Center Cambridge, MA	400-47009	66,375
Steel Covered Wavemaker	To provide improvements in the control actuation system of the oscillating air valves and to reduce malfunctions and maintenance requirements in the wavemaker dome assemblies of the Navy's maneuvering and seakeeping basin.	Daedalean Associates Woodbine, MD	7-38048	250,000
Marine Board FY 1984	To continue support of the Marine Board of the National Academy of Science.	Office of Naval Research Arlington, VA	400-49001	200,000
Fuel Cell Auxiliary Power Plants	To develop the design characteristics necessary to evaluate two types of phosphoric acid fuel cells for use in the marine environment for auxiliary electric power.	Arctic Enterprises, Ltd. Annapolis, MD	41004	50,000
Sail Assist Feasibility	To initiate a feasibility investigation to test the employment of sail assist aboard the California Maritime Academy training ship GOLDEN BEAR.	Wind Ship Company Norwalk, CT	41009	25,000

* Cost Shared

Project	Task	Vendor	Contract Number	Amount
Ship Performance & Safety				
Speed/Fuel Monitoring	To develop, test and evaluate a speed/fuel monitoring system to assist ship operators identify and measure the effects of factors related to fuel losses.	Bearing Technology Charlottesville, VA	MA5-0153	$35,416
	Advanced Ship Operations			
Fleet Management:				
Fleet Management Monitoring	To conduct, operate and evaluate software projects developed by industry in the Fleet Management Technology cooperative program.	General Services Administration Washington, D.C.	4-2780 4-2773	10,038
Automated Carrier Interface	To develop, test and evaluate an automated carrier interface system and demonstrate the advanced communication technology for commercial and military shipping operations.	Council of American-Flag Ship Operators Washington, D.C.	MAH-1 11001	124,950
Fleet Management Technology Forecasting Program	To develop a long range strategic forecasting plan employing computer/communications technology for maritime applications.	RJO Enterprises, Inc. Crofton, MD	41025	172,803
Fleet Management Annual Conference	To provide staff support services to prepare for and to conduct the Annual Fleet Management Technology Conference held in Chicago, Illinois, April 25-27, 1984.	Simat International, Ltd. Washington, D.C.	4-2276	9,500
Diesel Fuel Cost and Quality Selection	To develop an automated marine diesel fuel cost and quality selection program and evaluate the fuel possibilities to determine an optimum fuel ranking under certain operation conditions.	Seaworthy Systems, Inc. Essex, CT	41006	147,000
Computer Applications for Small Ship Operators	To determine the most suitable microcomputer arrangement to meet management requirements for small ship operators.	Great Lakes Towing Cleveland, OH	41036	79,000
Ship Performance Analysis System	To develop an automated system to assist ship operators evaluate and determine optimum hull and propeller maintenance procedures.	J. J. McMullen, Associates New York, NY	41037	106,339
Waterway Transportation System Information Services	To develop, install, operate and conduct a one-year prototype waterway transportation information system.	National Waterways Foundation Arlington, VA	41038	100,000

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Digital Ship to Shore Communications Interface	To develop an efficient, direct digital automated interface system between shipboard data acquisition systems and main office computing systems.	Dravo Mechling New Orleans, LA	41039	$ 99,000
Integrated Design Synthesis Model	To plan and combine container-ship fleet planning and the preliminary design synthesis model to assist in providing ship operators long range market and vessel requirements.	Trans Tech Elwyn, PA	41040	53,000
Vessel Performance System	To design, develop, test and evaluate an automated onboard, shoreside computer system to assist in determining the optimum individual vessel operation.	Twin City Barge and Towing St. Paul, MN	41003	128,000
Cargo Handling:				
Joint Logistical Over the Shore Operation	To provide observers for the collection of qualitative data on equipment operation and personnel performance during JLOTS operation.	Information Spectrum Arlington, VA	4-2790	15,716
Sea Shed Commerical Tests	To conduct and evaluate commercial Sea Shed tests and development, fabrication and testing of a universal vessel adapter for Sea Shed.	Farrell Lines, Inc. New York, NY	X-31004	350,000
General Working Agreement	To examine and develop advanced technology systems for potential use within the maritime industry.	Transportation System Center Cambridge, MA	400-49005 MA-84	350,000
Port and Intermodal:				
Port Planning Information System	To develop, test and evaluate an automated long range forecast system for cargo/trade for deep-water ports.	Transportation System Center Cambridge, MA	400-47011 MA-84	70,000
Barge Fleeting Study	To develop an inland waterway barge fleeting plan to accommodate the requirements of high density barge traffic and a guidebook for a manual to other major waterway districts.	St. Bernard Port and Terminial District Chalmette, LA	X-31002	65,000
Qualifying Dredge Material	To develop a rationale for the reclassification of certain dredge material as an aid to dredging in new and maintenance dredging areas.	American Association of Port Authorities Washington, DC	4-2685	7,500

* Cost Shared

Projects	Task	Vendor	Contract Number	Amount
Movement of Montana State Exports	To identify potential export marketing opportunities and analyze methods of reducing inland transportation costs in the State of Montana.	Montana State Department of Commerce, Transportation Division Helena, MT	X-40001	52,642
Inland River Port/ Terminial Information System	To develop a prototype management information system for inland ports.	City of St. Louis Port Authority St. Louis, MO	X-00002	90,000
	Research Facilities			
Computer-Aided Operations Research Facility (CAORF)				
Management and Operations	To provide daily management and operation at CAORF, for the period October 1, 1983, through September 30, 1984.	Ship Analytics, Inc. Centerport, NY	X-30002	563,348
Engineering Maintenance Support	To provide daily technical maintenance and engineering support for CAORF for the period October 1, 1983, through September 30, 1984.	Sperry Systems Management Great Neck, NY	20003	1,559,861
Technical Research Experimenter	To provide technical research for maritime studies at CAORF for the period October 1, 1983, through September 30, 1984.	Ship Analytics, Inc. Centerport, NY	20004	1,508,910
Engineering Maintenance Support*	To provide on-site validation of ship gathering data and to expand the validation process associated with the simulation of Panamax Class vessels transiting the Panama Canal.	Sperry Systems Management Great Neck, NY	20003	79,416
Administrative Support:				
Maritime Technical Literature Resources Study 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 Great Neck, NY	MA9-30023	144,058
Handbook for Applied Marine Electronics	To complete the final adjustment and closeout contractual services for the preparation of a marine electronics handbook.	Data Communications, Inc. Melville, NY	MA2-4238	35,000
Technical Documentation Preparation	To prepare and organize research and development reports into a uniform and standard format for printing.	The Barje Co. Merrick, NY	MA-60011	43,206
Water Chiller	To replace the water chiller for the air-conditioning system at CAORF, Samuels Hall.	Service Systems Flushing, NY	4-1517	86,878
Air-Conditioning Repair	To repair and replace certain air-conditioning equipment, thermostats and dampers in the air-conditioning system in Fitch Building.	Service Systems Flushing, NY	4-3330 4-3331	13,840

* Cost Shared

Appendix IV: STUDIES AND REPORTS RELEASED IN FY 1984

The following major* studies or reports were released by the Maritime Administration during fiscal year 1984.

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

MARAD 1983 (The Annual Report of the Maritime Administration for Fiscal Year 1983), 65pp [MARAD]

Catalog of Computer Software Applications for Maritime Transportation, prepared by the Maritime Administration, July 1984, 37pp [MARAD]

Containerized Cargo Statistics, prepared by Maritime Administration, March 1984, 128 pp [MARAD]

A Guide to Selecting Shipboard Container and Trailer Restraint Systems, prepared by C. R. Cushing & Co., Inc., September 1983, 244pp PB84–104405, $22 [NTIS]

Implications of World Coal Demand on U.S. Port Strategic Planning, prepared by Boston University's Energy and Environmental Center, October 1983, 111pp, PB84–117126 $13 [NTIS]

Maritime Subsidy Board Reports, Volume 4 (June 1973 to December 1977) prepared by the Maritime Administration, September 1983, 937pp $20, [MARAD]

A Market Assessment of U.S.-Flag Bulk/Container Vessels, prepared by C. R. Cushing & Co., Inc., and Data Resources, Inc., October 1983, 200pp, PB84–180330, $16 [NTIS]

Remote Reefer Monitoring, prepared by Sea-Land Service, Inc., October 1983, 87pp, PB84–158005, $11.50 [NTIS]

Repair System for Cavitation Erosion, prepared by Bell Aerospace Textron, Inc., July 1984, 96pp, PB84–241413, $10 [NTIS]

Report on Survey of U.S. Shipbuilding and Repair Facilities, 1983, prepared by the Maritime Administration, December 1983, 132pp [MARAD]

A Report to the Congress on the Status of the Public Ports of the United States, for calendar years 1982 and 1983, prepared by the Maritime Administration, August 1984, 101pp [MARAD]

Tankers in the World Fleet, as of January 1, 1983, prepared by the Maritime Administration, 179pp [MARAD]

Test and Evaluation of Satellite-Aided Maritime Search and Rescue System, prepared by Mitre Corp., May 1984 [NTIS]

Volume I	System Description and Test Results PB84–184621	$23.50
Volume II	Hardware Circuitry and Software Programs PB84–184639	$11.50

U.S. Imports Via Minibridge, 1981–1983, prepared by the Maritime Administration, September 1984, 30pp [MARAD]

United States Oceanborne Foreign Trade Routes, calendar year 1982, prepared by Maritime Administration, August 1984, 324pp [GPO]

* 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.