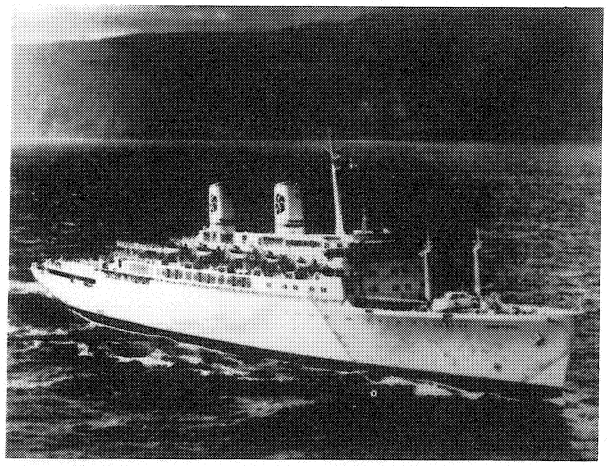
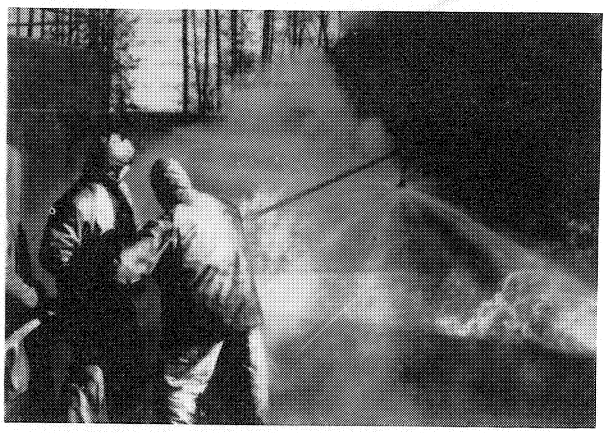
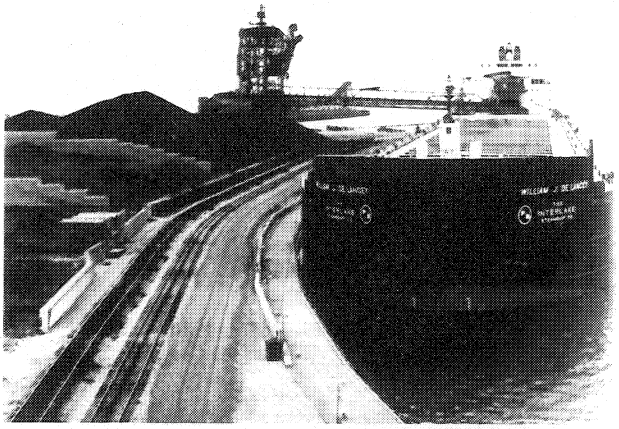
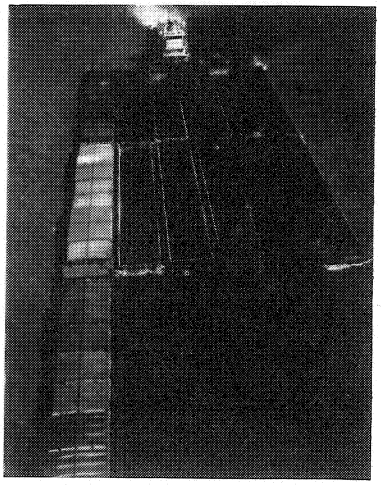
MARAD '82

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









MARAD '82

The Annual Report of the
Maritime Administration
for Fiscal Year 1982

U.S. DEPARTMENT OF TRANSPORTATION
Maritime Administration

FEBRUARY 1984

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HST 1

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

FEB 13 1984

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

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

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

Dear Sirs:

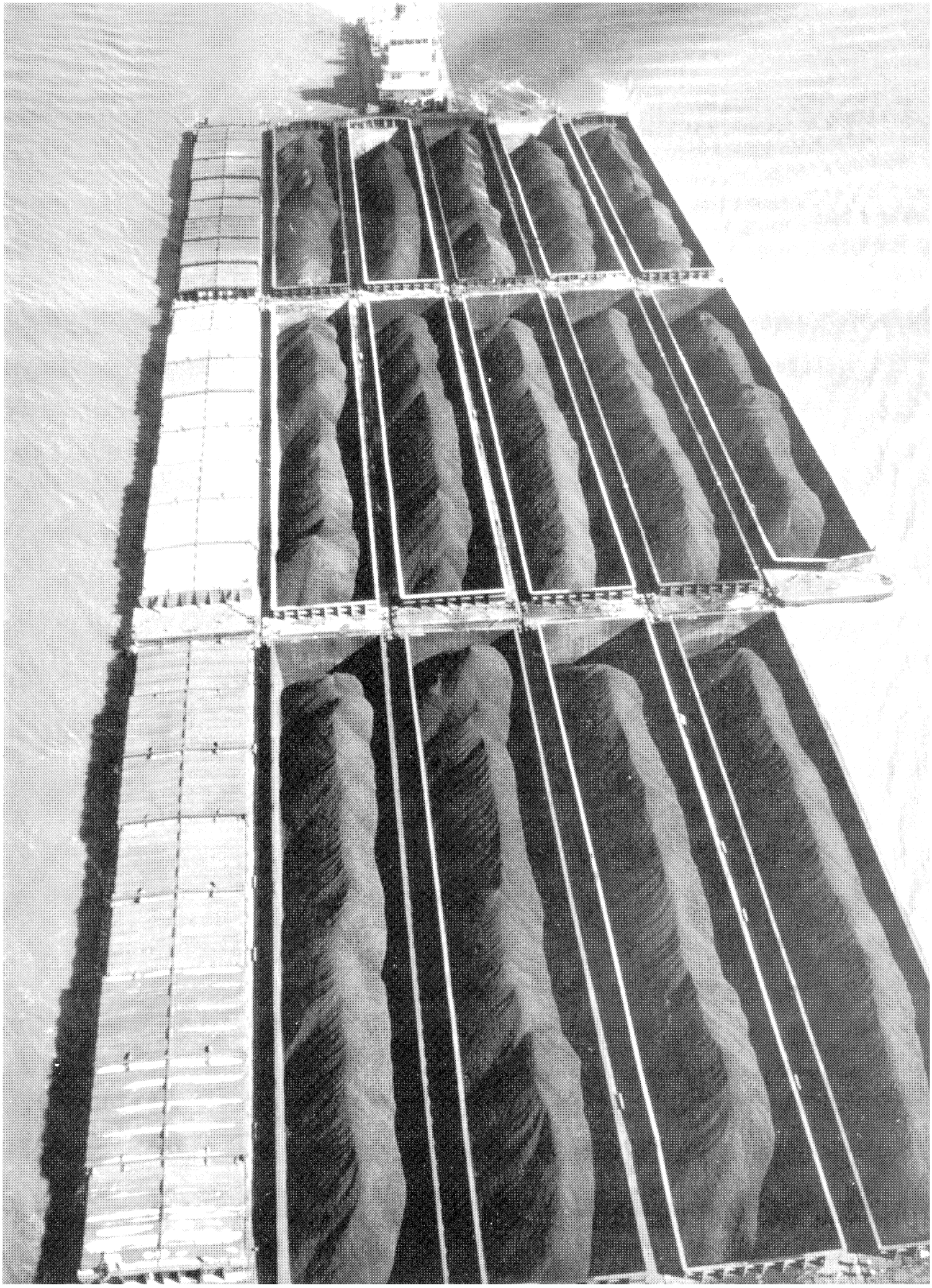
I have the pleasure of forwarding to you the annual report of the of the Maritime Administration for fiscal year 1982 as required by the Marine Act, 1936, as amended.

With best wishes.

Respectfully,

Elizabeth H. 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. It reviews the Agency's activities in administering Federal maritime programs and pertinent developments which affected the U.S. maritime industry in the fiscal year ending September 30, 1982.

This was the first full year MARAD was a part of the Department of Transportation (DOT), the Agency having been transferred from the Department of Commerce in August 1981.

As the President's spokesman for maritime affairs, the Secretary of Transportation during this reporting period announced numerous actions and policy positions designed to help revitalize the American merchant marine. The goal is to direct the maritime industry on a course leading to self-sufficiency and greater competitiveness.

The Administration aggressively supports regulatory reform legislation to expand anti-trust immunity and permit the U.S. shipping industry to operate on grounds similar to those of its international competitors. While legislative action was not completed on this measure before the adjournment of Congress in 1982, the support it received was encouraging. It continues to be a high priority of the Administration.

During the year the Administration supported, and also continues to support, an extension of the build-abroad option for recipients of, or applicants for, operating-differential subsidy (ODS). Under this option, which effectively expired at the end of this reporting period, approval was given for the construction of up to 36 new U.S.-flag ships and the conversion of up to 14 existing ships in foreign shipyards. By this means, an upgrading of the fleet will be achieved without cost to the taxpayer. We proposed permitting U.S.-flag vessel operators to use existing and newly deposited tax-deferred monies in Capital Construction Funds to construct or acquire vessels in this manner.

Also, to increase the availability of capital, the Administration proposed legislation to encourage increased foreign investment in U.S.-flag shipping, by increasing the allowable percentage of foreign ownership, while retaining U.S. management control.

In addition, the Administration recommended legislation to provide flexibility for ship operators to make repairs overseas without a tax penalty.

Actions taken by the Administration during the period and not requiring legislation included:

- — Authorizing an increase in the fiscal year 1983 ceiling on new Ship Financing Guarantee commitments (the Title XI program) from the prescribed $600 million to $900 million. The $300 million in additional Title XI authority would be held in reserve by the Secretary to be used in the interest of national security.
- — Initiating reforms in the ODS program to ensure operating flexibility and reduce costs.
- — Conducting regulatory reform programs within DOT and other departments to address all regulations adversely affecting the shipping and shipbuilding industries.
- — Supporting the elimination of regulations governing rates in the domestic waterborne trades.
- — Creating the Executive position of Deputy Maritime Administrator for Inland Waterways and Great Lakes.

Under a policy reaffirmed by the Administration, the Department of Defense will continue its efforts to expand appropriate use of civilian non-government seafarers to crew government merchant ships. In that regard, it is appropriate to note that military sealift vessels being built and converted under the U.S. Navy's "T" ship program will be crewed by non-government civilian seafarers.

In FY 1982 the Navy awarded $1.1 billion in contracts to seven shipbuilding firms for the construction of four new "T" ships and the conversion of eight existing merchant vessels. The participating yards also received contract options totaling $1.2 billion for six additional new buildings and eight additional conversions. Other "T" ship contract awards were expected.

Private shipyards also will participate significantly in the planned expansion of the U.S. Naval fleet from 500 ships to 600 ships by the end of the decade.

We still have a long way to go to restore the United States to the rank of a first-class maritime power.

However, the actions taken during FY 1982 are very important first steps toward that goal.

H. E. SHEAR
Maritime Administrator

Chapter 1

Shipbuilding

Contract Awards

During fiscal year 1982 private contracts were awarded to U.S. shipyards for the construction of four nonsubsidized commercial vessels totaling 52,280 deadweight tons (dwt.). These contracts included one 35,000-dwt. chemical tanker, one oceanographic research ship, and two incinerator ships—the first vessels of this type ever to be built in the United States. (See Table 1.)

The Maritime Administration (MARAD) did not grant construction-differential subsidy (CDS) for the construction of any new merchant vessels or for the conversion of existing commercial ships during this reporting period.

At the end of the fiscal year, 26 deep-draft merchant vessels totaling 871,555 dwt. and valued at over $1.7 billion were under construction or on order in American shipyards. Nine of the 26 were being built with the aid of CDS, and all nine were also participating in the Federal Ship Financing Guarantee (Title XI) Program. Of the 17 privately financed new vessels, 11 carried Title XI guarantees.

One major subsidized ship conversion was underway at the end of the fiscal year.

Merchant ships on order as of September 30, 1982, are shown in Table 2.

In addition, 31 offshore oil-drilling rigs valued at approximately $1.3 billion were in production or on order in 11 U.S. shipyards on September 30, 1982.

Ship Deliveries

Eleven new commercial vessels totaling 309,780 dwt. were delivered by American shipyards during fiscal year 1982. (See Table 3.)

Three of the vessels delivered were subsidized:

- The 36,000-dwt. dry-bulk carrier STAR OF TEXAS, built by Levingston Shipbuilding Co. for Asco-Falcon II Shipping Co. for worldwide bulk trading;
- The 83-foot-long inter-island trailer carrier P'TI BLEU II, built by Atlantic Marine, Inc., for Blue Lines, Inc., for operation in the Caribbean; and
- The Roll-On/Roll-Off barge ATLANTIC and tug J.J. OBERDORF, a tug/barge unit. The tug was built at Marinette Marine. The barge was partially built at the now defunct Seatrain Shipyard and completed and joined with the tug at Norfolk Shipbuilding & Drydock Corp. Although originally planned to be purchased by Coordinated Caribbean Transport, Inc., the vessel was delivered to MARAD and laid up in MARAD's National Defense Reserve Fleet.

Delivery of these three vessels brought to 74 the number of subsidized ships contracted for and delivered since enactment of the Merchant Marine Act of 1970.

The eight nonsubsidized commercial vessels delivered in FY 1982 were:

- The 37,500-dwt. product tanker, SIERRA MADRE, built by National Steel and Shipbuilding Co. (NASSCO), for Union Oil Co. of California, for U.S. coastwise service;
- The 42,000-dwt. product tanker, OGDEN HUDSON, built by Avondale Shipyards, for Ogden Shannon Transport, Inc., for U.S. intercoastal service;
- The 37,500-dwt. product tanker EILEEN INGRAM, delivered by NASSCO to Hartford National Bank and Trust Co., to be operated by Tanker Management, Inc., in U.S. coastwise service;
- The 47,000-dwt. oceangoing tug/barge JACKSONVILLE, built by Bethlehem Steel at Sparrows Point, Md. with tug construction subcontracted to Halter Marine, for Artemis Marine Co., for carrying petroleum products in the U.S. domestic trade;
- The 47,000-dwt. oceangoing tug/barge GROTON, also built by Bethlehem Steel at Sparrows Point, with tug construction subcontracted to Halter Marine, for Amerada Hess Corp., for carrying petroleum products in the U.S. domestic trade;
- The 37,000-dwt. tug/barge MOKU PAHU, built by Bath Iron Works for Sun Ship, Inc., with construction of the tug subcontracted to Halter Marine, for California &

Table 1: PRIVATE SHIP CONSTRUCTION CONTRACTS AWARDED IN FY 1982

Owner	Shipbuilder	Type	No. Vessels	Total Deadweight Tons	Est. Completion Date	Total Est. Cost (Millions)
Union Carbide Corp.	Newport News	Chemical Tanker	1	35,000	11/83	$ 80.0
Apollo Company	Tacoma Boat	Incinerator Ship	2	12,400	1984	75.2
Shell Offshore, Inc.	Marinette	Research Ship	1	4,880	12/83	30.0
Total Private Contracts—FY 1982			**4**	**52,280**		**$185.2**

Table 2: SHIP CONSTRUCTION UNDER CONTRACT—SEPTEMBER 30, 1982

Owner	Shipbuilder	Ship[1] Type	No. of Ships	Total Deadweight Tons	Est. Completion Date	Est. Cost[2] (Millions)	Government Participation[3]
New Construction:							
American President Lines, Ltd.	Avondale Shipyards	CN	3	96,975	3/83	$ 273.0	CDS, MG, NDF
American Trading Trans. Co.	National Steel & SB	PT	3	132,000	5/83	197.1	MG
Apollo Co.	Tacoma Boatbuilding	I	2	12,400	8/84	74.5	MG
Asco-Falcon III Shipping Co.	Levingston SB	DBC	1	36,000	12/82	40.4	CDS, MG, NDF
Coastwise	General Dynamics	TKB	1	27,000	10/82	15.0	None
Exxon Company, USA	Avondale Shipyards	PT	3	127,500	7/84	255.0	None
Falcon I Sea Transport Co.	Bath Iron Works	PT	2	67,800	1/84	142.0	CDS, MG, NDF
General Electric Credit Corp.	National Steel & SB	PT	1	37,500	6/83	59.9	MG
New England Electric	General Dynamics	DBC	1	36,000	7/83	67.8	MG
Second, Third, Fourth & Fifth Tug/Barge Corps.	Bethlehem Steel	ITB	4	188,000	10/83	287.2	MG
Shell Offshore	Marinette Marine	R	1	4,880	12/83	30.0	None
Union Carbide Corp.	Newport News SB&DD	CH	1	35,000	11/83	80.0	None
Waterman Steamship Corp.	Sun Ship[4]	RO/RO/CN	3	70,500	Indef.	207.9	CDS, MG, NDF
Total New Construction			**26**	**871,555**		**$1,729.8**	
Conversions:							
Moore McCormack Lines	American Ship Building	CG	1	15,280	6/83	$ 18.0	CDS

[1] CG = cargo; CN = containership; CH = chemical carrier; DBC = dry-bulk carrier; I = incinerator ship; ITB = integrated tug/barge; PT = product tanker; R = research ship; RO/RO/CN = roll-on/roll-off/containership; TKB = tanker barge.

[2] Total contract cost including CDS & NDF, but excluding engineering & change orders.

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

[4] First ship was completed by Sun Ship but not officially delivered. Second ship is being completed for Sun Ship by Pennsylvania Shipbuilding Co. Third ship is being constructed for Sun Ship by General Dynamics, Quincy, Mass.

Hawaiian Sugar Co., for operation between California and Hawaii;

- The 9,500-dwt. tug/barge AMOCO GREAT LAKES/AMOCO MICHIGAN, built by Bay Shipbuilding Corp., for Amoco Oil Co., for service on the Great Lakes; and
- The diesel-propelled oceangoing hopper dredge STUYVESANT, built by Avondale Shipyards, for Stuyvesant Dredging, Inc.

Table 4 lists deliveries of merchant vessels by major shipbuilding nations during calendar year 1981.

Section 615 Approvals

A provision of the Omnibus Budget Reconciliation Act of 1981, amended the Merchant Marine Act, 1936, to authorize operators receiving or applying for operating-differential subsidy to construct, reconstruct, or acquire vessels in foreign shipyards under certain circumstances.

Under the law, designated Section 615 of the 1936 act, 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.

Legislation to extend or reinstate Section 615 authority was supported by the Administration.

During FY 1982, Section 615 permission was granted to 18 companies to construct, reconstruct, or acquire vessels in foreign shipyards. (See Table 5.)

Title XI Guarantees

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

As originally enacted, Title XI authorized the Federal Government to insure private-sector loans or mortgages made to finance or refinance the construction or reconstruction of American-flag vessels in U.S. shipyards. Title XI was amended in 1972 to provide direct Government guarantees of the underlying debt obligations for future transactions, with the U.S. Government holding a mortgage on the equipment financed.

The Government insures or guarantees full payment to the

lender of the unpaid principal and interest of the mortgage or obligation in the event of default by the vessel owner.

Title XI guarantees of approximately $635.7 million covering 1,069 vessels were conditionally approved by MARAD in FY 1982. (See Table 6.)

Based on previous Title XI commitments, guarantees were placed on 512 vessels during this reporting period.

Title XI guarantees in force amounted to approximately $8.1 billion as of September 30, 1982. Active pending applications represented approximately $1 billion in additional guarantees. (See Table 7.)

During FY 1982, Congressional authority for the Title XI program was $12 billion. Of that amount, $1.65 billion was reserved for use by the Department of Energy in ocean thermal energy conversion vessels and facilities, and $850 million was allocated to guarantee the financing of fishing vessels by the National Oceanic and Atmospheric Administration.

By administrative action, the level of new commitments that could be issued during FY 1982 was limited to $675 million and the maximum guarantee level set at 75 percent of vessel cost.

The total costs of the Title XI program, including salaries of the MARAD staff employed in the mer-

Table 3: NEW SHIPS DELIVERED FROM U.S. SHIPYARDS DURING FY 1982

Owner	Builder	Vessel Type	Vessels
Subsidized			
Asco-Falcon II Shipping Co.	Levingston SB	Dry Bulk	1
Blue Lines, Inc.	Atlantic Marine	Trailer Carrier	1
Maritime Administration[1]	Seatrain/Marinette/Norfolk SB	Integrated Tug/Barge	1
	Total Subsidized Deliveries		**3**
Nonsubsidized			
Union Oil Co. of California	National Steel & SB	Product Tanker	1
Ogden Shamrock Transport, Inc.	Avondale Shipyards	Product Tanker	1
Hartford Nat. Bank & Trust Co.	National Steel & SB	Product Tanker	1
Artemis Marine Company	Beth.-Sparrows Pt./Halter	Integrated Tug/Barge	1
Amerada Hess Corporation	Beth.-Sparrows Pt./Halter	Integrated Tug/Barge	1
California & Hawaiian Sugar Co.	Bath Iron Works/Halter	Integrated Tug/Barge	1
Amoco Oil Company	Bay Shipbuilding	Integrated Tug/Barge	1
Stuyvesant Dredging Inc.	Avondale Shipyards	Self-Propelled Dredge	1
	Total Nonsubsidized Deliveries		**8**
Total New Ships Delivered FY 1982			**11**

[1] Vessel was completed by MARAD at Norfolk SB after default by Seatrain Shipbuilding. The tug was built by Marinette Marine.

Table 4: WORLDWIDE SHIP DELIVERIES—CALENDAR YEAR 1981 (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	**665**	**19,415.0**	**1**	**2.6**	**272**	**2,724.3**	**180**	**9,372.4**	**212**	**7,315.7**
United States	11	423.3	—	—	1	40.7	1	32.1	9	350.5
Brazil	22	913.3	—	—	5	96.7	15	781.3	2	35.3
Denmark	12	380.5	—	—	6	78.2	4	252.2	2	50.1
Finland	12	142.7	—	—	4	49.8	1	2.7	7	90.2
Germany (Dem. Republic)	10	138.4	—	—	8	92.4	2	46.0	—	—
Germany (Fed. Republic)	32	539.3	—	—	13	198.3	4	243.5	15	97.5
Italy	12	181.8	—	—	9	118.3	1	49.2	2	14.3
Japan	317	10,863.8	1	2.6	108	889.0	98	5,688.3	10	4,283.9
Korea (Republic of)	32	1,285.8	—	—	8	67.2	12	944.8	12	273.8
Netherlands	16	121.0	—	—	9	90.5	1	11.8	6	18.7
Norway	18	378.8	—	—	6	37.7	2	151.6	10	189.5
Poland	14	232.7	—	—	11	120.5	3	112.2	—	—
Spain	43	1,260.4	—	—	24	165.3	11	210.4	8	884.7
Sweden	13	380.7	—	—	5	102.6	—	—	8	278.1
U.S.S.R.	15	171.9	—	—	10	66.8	2	17.1	3	88.0
United Kingdom	15	235.6	—	—	8	102.5	5	127.6	2	5.5
Yugoslavia	9	130.8	—	—	9	130.8	—	—	—	—
All Others	62	1,634.2	—	—	28	277.0	18	701.6	16	655.6

chant 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 FY 1982, the Federal Ship Financing Fund had a net income of $62,795,689.

Capital Construction Fund

The Capital Construction Fund Program (CCF) 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.

During FY 1982, $319 million were deposited in these accounts. Since the program was initiated in 1971, fund-holders (shown in Table 8) have deposited $2.7 billion in CCF accounts and withdrawn $2.1 billion for the modernization and expansion of the U.S. merchant marine.

The CCF program has broad applicability. It 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. This program aids in the construction, reconstruction, or acquisition of a wide variety of vessels, including containerships, LASH vessels, other types of cargo ships, tankers, LNG vessels, bulk carriers, tugs, barges, supply vessels, ferries, and passenger vessels.

The total value of projects completed or begun by CCF holders is approximately $5.3 billion. The 127 fund holders listed in Table 8 have projected expenditures under this program totaling $3.8 billion. Of this total, $2.9 billion is projected for vessels operating in the U.S. foreign trade, $445 million for the noncontiguous domestic trade, and $456 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.

Table 5: SECTION 615 APPROVALS—As of September 30, 1982

Applicant	Project	Yard/Location	Estimated Foreign Cost
Aeron Marine Shipping Co.	Acquire one or two new approximately 63,000-dwt. bulk vessels	(Not Available)	$ 40,000,000
American President Lines, Ltd.	Reconstruct three containerships	Mitsubishi Heavy Industries, Ltd., Japan	10,160,000
Delta Steamship Lines, Inc.[1] Crowley Maritime Corp.	Build up to 10 self-sustaining container vessels with some temporary break-bulk capacity	(Not Available)	350,000,000
Equity Maritime I, II & III Co. Equity Bulkships I, II & III Co.	Construct six approximately 80,000-dwt. Panamax type ore/bulk/oil carriers	Hitachi Zosen, Japan, and Hyundai Corp., South Korea	168,000,000
First American Bulk Carrier Corp.	Construct two 40,000-dwt. bulk/container cargo vessels	Samsun Shipbuilding Co., Ltd., South Korea	69,100,000
Hvide Shipping, Inc.	Reconstruct barge OXY 4102 into a self-propelled chemical tanker	(Not Available)	(Not Available)
Margate Shipping Co.	Retrofit three tankers to meet requirements of the Port and Tanker Safety Act (PTSA)	Estaleiros Navais de Lisboa, SARL, Portugal	3,324,484
Moore McCormack Bulk Transport	Retrofit three tankers to PTSA requirements	A/S NYE Fedriksstad mek Verksted, Norway	7,350,000
Ogden Marine, Inc.	Build two dry-bulk carriers	Isikaiwajima-Harima Heavy Industries, Co. Ltd., Japan	48,971,596
Phoenix Bulkship I, II, & III, Inc.[2]	Convert three LNG carriers into combination dry-bulk/oil carriers	Hyundai Mipo Dockyard Co., Ltd., South Korea	69,000,000
United States Lines, Inc.	Construct 14 Jumbo Econship containerships	Daewoo Shipbuilding and Heavy Machinery Ltd., and Daewoo Corp., South Korea	780,500,000
United States Lines, Inc.	Convert AUSTRAL MOON from a barge carrying vessel to a containership	Hyundai Mipo Dockyard Co., Ltd., and Hyundai Corp., South Korea	4,200,000

[1] Authority also had been given Delta for the reconstruction of six vessels in the United Kingdom, but was withdrawn at Delta's request.

[2] Authority granted to Phoenix Bulkship III was also extended to El Paso Columbia Tanker Co.

Table 6: SHIP FINANCING GUARANTEES—COMMITMENTS APPROVED IN FY 1982

Number	Type of Vessel	Company	Amount Guaranteed[1]
Deepdraft Vessels:			
1	Tanker	Andover Shipping Co., Inc.	$ 30,160,000
1[2]	Tanker	Boston VLCC Tankers, Inc. II	953,000
1[2]	Tanker	Boston VLCC Tankers, Inc. IV	646,000
1[2]	Tanker	Boston VLCC Tankers, Inc. VI	719,000
1	Tanker	Allied Towing, Inc.	12,095,000
1	Bulk Carrier	Interlake Steamship Company	8,067,000
1	Collier	New England Collier Company	50,814,000
1	Bulk Carrier	Marine Bulkcarriers, Inc.	15,000,000
1	Tanker	Cove Liberty Corporation	8,550,000
1	Tanker	Point Vail Company	18,462,000
7		**Total Deepdraft Vessels**	**$145,446,000**
Other Types:			
Ocean:			
5	Tugs	Bay-Houston Maritime Industries, Inc.	$ 7,230,000
6	Tugs	Foss Title XI, Inc.	20,896,000
1	Barge	Offshore Transportation Company	3,000,000
2	Tugs	Moran Energy Corporation	7,660,600
1	Barge	Moran Energy Corporation	13,226,400
4	Tugs	Puget Sound Tug & Barge Company	6,764,500
9	Barges	Puget Sound Tug & Barge Company	12,290,500
28		**Total Ocean**	**$ 71,068,000**
River:			
15	Barges	Shearson River Barge Associates II	$ 2,646,000
20	Barges	Parker Towing Co.	4,251,000
2	Tugs	Coastal Towing, Inc., Texas	2,758,500
6	Barges	Coastal Towing, Inc., Texas	6,574,500
3	Tugs	Radcliff Materials, Inc.	2,735,000
40	Barges	Radcliff Materials, Inc.	9,115,000
15	Barges	Shearson River Barge Associates VI	2,903,000
60	Barges	Dravo Mechling Corporation	12,140,000
2	Barges	Brown Marine Service, Inc.	2,687,000
1	Tug	Tenn-Tom Towing, Inc.	538,000
2	Barges	Tenn-Tom Towing, Inc.	1,192,000
1	Tug	Ingram Towing Company	555,200
48	Barges	Ingram Towing Company	9,216,800
94	Barges	ML Barge Operating Company	17,975,000
2	Tugs	American Commercial Lines, Inc.	4,995,000
86	Barges	American Commercial Lines, Inc.	14,727,000
82	Barges	Canal Barge Company, Inc.	18,798,000
18	Barges	Commercial Barge Carriers Limited Partnership I	3,260,000
22	Barges	Commercial Barge Transport Limited Partnership I	4,050,000
10	Barges	Cook Export Corporation	1,970,000
50	Barges	ML Barge Pool VII Partners, Series A	8,269,000
14	Tugs	Seminole Electric Cooperative, Inc.	22,976,000
116	Barges	Seminole Electric Cooperative, Inc.	43,579,000
3	Tugs	The Valley Line Company	4,002,000
293	Barges	The Valley Line Company	59,816,000
1,005		**Total River**	**$261,729,000**

(Continued on page 8)

Table 6: (Continued)

Number	Type of Vessel	Company	Amount Guaranteed[1]
Drill Service:			
2	Tug/Supply Vessels	Pelham Marine, Inc.	$ 5,707,000
2	Tug/Supply Vessels	Linden, Inc.	6,062,000
6	Tug/Supply Vessels	LEAM Marine Ltd. I	17,764,000
7	Tug/Supply Vessels	Petromar International, Ltd.	27,260,000
3	Tug/Supply Vessels	Petromar Offshore, Ltd.	11,105,000
4	Tug/Supply Vessels	Trico Limited III	8,576,000
24		**Total Drill Service**	**$ 76,474,000**
Miscellaneous:			
1	Self-propelled Hopper Suction Dredge	Dodge Island Corporation	$ 11,290,000
2	Incinerator Vessels	Apollo Company, L.P.	55,875,000
1	Hydraulic Dredge	Canonie Pacific Co.	1,753,000
1	Self-propelled Hopper Suction Dredge	North American Trailing Company	12,107,000
5		**Total Miscellaneous**	**$ 81,025,000**
1,069		**Total Vessels**	**$635,762,000**

[1] Note: Some numbers have been rounded to nearest dollar.
[2] Note: Not included in ship count; involved second mortgage.

The S.S. SIERRA MADRE is the third product tanker built by National Steel and Shipbuilding Co. in San Diego for Union Oil Co. of California. The 658-foot, 37,500-deadweight-ton vessel is capable of carrying 10 different petroleum products simultaneously.

Table 7: FEDERAL SHIP FINANCING GUARANTEE (TITLE XI) PROGRAM SUMMARY
(Statutory Limit $9.5 Billion) Principal Liability on September 30, 1982

Vessel Types	Contracts in Force: Vessels Covered	Contracts in Force: Principal Amount*	Active Applications: Vessels Covered	Active Applications: Principal Amount*
Deepdraft Vessels:				
Tankers	84	$2,030,776,637	8	$352,430,000
Cargo	143	1,186,397,667	4	142,935,000
LNGs	16	1,262,270,000	0	0
Bulk/OBOs	23	419,202,830	0	0
Total	**266**	**$4,898,647,134**	**12**	**$495,365,000**
Other Types:				
Drill Rigs/Ships	81	$1,008,408,829	0	$ 0
Tugs/Barges/Drill	3,992	1,930,198,235	645	454,899,430
Miscellaneous	19	214,272,227	8	41,507,062
Total	**4,092**	**$3,152,879,291**	**653**	**$496,406,492**
Total Vessels	**4,358**	**$8,051,526,425**	**665**	**$991,771,492**
Shipboard Lighters	**2,118**	**$ 72,089,411**	**0**	**$ 0**
Total	**6,476**	**$8,123,615,836**	**665**	**$991,771,492**

* Rounded to the nearest dollar.

The CRF is used predominantly by owners of vessels operating in coastwise trades, the inland waterways, and other trades not eligible for the CCF program. Its benefits are not so broad as those of the CCF.

Although the number of companies with CRF balances remained at eight during FY 1982, total deposits increased from $6.8 million to $8.5 million. (See Table 9.)

National Defense Features

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

In addition, the Navy Secretary certifies that the ships are suitable for economical and speedy conversion into naval auxiliaries or are otherwise suitable for use in time of war or national emergencies. The changes suggested by the Navy previously have been financed from the CDS account, which was effectively depleted at the close of the period.

Ship Design and Engineering

MARAD and the Navy closely cooperated during FY 1982 in the planning for procurement of the Navy's first T-ACS Auxiliary Crane Ship and the related T-ACS Crane Barge Test Platform. At year's end MARAD was preparing design and procurement packages and planned to oversee reconstruction of both vessels on behalf of the Navy.

The Government-owned containership PRESIDENT HARRISON will be converted into a prototype crane ship, designed to off-load cargo from non-self-sustaining vessels.

The crane barge involves the installation of a crane on a deck cargo barge to test a motion compensating system developed to permit safe cargo movement between vessels in a seaway.

Also during FY 1982, MARAD:

- Completed a design study for a 144,000-dwt. shallow-draft collier. The study demonstrated that (without dredging U.S. ports) economies of scale not available to more conventionally proportioned vessels can be achieved.

- Furnished technical review of the design of the SEA SHED project. SEA SHEDs are portable structures installed on containerships to allow loading of military vehicles and other cargo of varied configuration. In effect, SEA SHEDs can convert a containership into a break-bulk cargo vessel.
- Completed a concept design study for a new 130-foot training ship for potential use by the State and Federal merchant marine academies.
- Conducted separate studies on several types of commercial vessels in the National Defense Reserve Fleet (NDRF) for possible conversion into a number of different uses in support of military operations, evaluated the fleet's communications equipment, and

Table 8: CAPITAL CONSTRUCTION FUND HOLDERS—SEPTEMBER 30, 1982

A & A Boats, Inc.
A & G Corp.
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.
Aquarius Marine Co.
Ashland Alpha III Shipping, Inc.
Ashland Oil, Inc.
Atlantic Richfield Co.
Atlas Marine Co.
Bankers Trust of New York Corp.
Bethlehem Steel Corp.
Binkley Co.
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.
Cook Inlet Tug & Barge Co.
Crowley Maritime Corp.
CSI Hydrostatic Testers, Inc.
Delta Steamship Lines, Inc.
Dillingham Tug & Barge Corp.
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.
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
George Steinbrenner III
Gilco Supply Boats, Inc.
Graham Boats, Inc.
Great Lakes Towing Co.
Hannah Brothers
Hannah Marine Corp.
Houston Natural Gas Corp.
Hvide Shipping, Inc.
Inland Steel Co.
Inter-Cities Navigation Corp.
Intercontinental Bulktank Corp.
International Offshore Marine Services, Inc.
Interstate Marine Transport Co.
Interstate Towing Co.
ITC Towing Co.
John E. Graham & Sons
Kinsman Lines, Inc.
Leppaluoto Offshore Marine, Inc.
L & L Marine Services, Inc.
Luedtke Engineering Co.
Lykes Bros. Steamship Co.
Madeline Island Ferry Line, 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.
O.L. Schmidt Barge Lines, Inc.
Ocean Carriers, Inc.
Offshore Marine, Inc.
Ogden Corp.
Oglebay Norton Co.
Ohio Barge Line, Inc.
Overseas Bulktank Corp.
Pacific Hawaiian Lines, Inc.
Petro-Boats, Inc.
Petrolane Inc.
Powers-Carr Equipment Co.
Prince William Navigation Co.
Prudential Lines, Inc.
Reynolds Leasing Corp.
Ritchie Transportation Co.
River & Gulf Transportation Co.
Seabulk Tankers, Ltd.
Sea Savage, Inc.
Seal Fleet, Inc.
Smith Lighterage Co., Inc.
Steel Style Marine
State Boat Corp.
Sun Company, Inc.
Tidewater, Inc.
Transway International Corp.
Tug Alaska Mariner, Inc.
Tug Ocean Mariner, Inc.
Union Oil Co. of California
United States Cruises, Inc.
United States Lines, Inc.
Warrior & Gulf Navigation Co.
Waterman Steamship Corp.
Western Pioneer, Inc.
Windjammer Cruises, Inc.
Worth Oil Transport Co.
Young Brothers, Ltd.
Zidell, Inc.

Table 9: CONSTRUCTION RESERVE FUNDS—SEPTEMBER 30, 1982

Company	Balance
Cargo Carriers, Inc.	$2,949,961
Central Gulf Steamship, Inc.	1,000
Gulf Mississippi Marine Corp.	100
Joan Turecamo, Inc.	3,876
Keystone Shipping Company	748,978
Lee-Vac, Ltd.	813,288
Mobil Oil Corp.	3,282,406
Serodino, Inc.	688,361
Total September 30, 1982	**$8,487,970**
Net Increase Fiscal Year 1982	**$1,644,256**

continued work on specifications to re-engine NDRF tugboats.

Shipyard Improvements

The American shipbuilding and ship repair industry invested $329 million in facilities modernization and expansion during FY 1982. Plans also were underway to spend an additional $230 million in FY 1983, mainly for larger drydocks and support facilities to increase vessel conversion, overhaul, and repair capabilities. Several yards also had plans to prepare for an anticipated increase in naval ship construction.

Since enactment of the Merchant Marine Act of 1970, the U.S. shipbuilding and ship repair industry has invested approximately $2.6 billion in plant modernization and improvements. These investments have significantly increased the capacity, capability, and productivity of the industry.

Disadvantaged Business/Women's Business Enterprise Program

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

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

Chapter 2

Ship Operations

U.S. Fleet Profile

At the end of fiscal year 1982, the U.S.-flag privately owned, deep-draft merchant fleet (including the Great Lakes fleet listed in Table 18) totaled 725 vessels with a cargo-carrying capacity of 24.5 million deadweight tons (dwt.).

The fleet averaged 33,800 dwt., an age of 17.5 years, and a speed of about 18 knots.

The oceangoing segment of the fleet consisted of 567 ships of 21.4 million dwt., of which 483 ships of 18.3 million dwt. were active. The latter comprised 86 breakbulk cargo ships, 128 intermodal vessels (containerships, barge-carrying vessels, and roll-on/roll-off vanships known as RO/ROs), 5 combination passenger-cargo ships, 11 integrated tug-barge vessels, 228 tankers, 17 bulk carriers, and 8 liquefied natural gas (LNG) carriers. (See Table 10.)

Of the 84 inactive vessels, 14 were temporarily inactive, either awaiting cargoes or undergoing repairs, and 70 were laid up.

Employment of the U.S.-flag oceangoing fleet as of September 30, 1982, is shown in Table 11.

In world fleet rankings as of January 1, 1982, the privately owned fleet placed eighth on a dwt. basis and eleventh on the basis of number of ships. (See Table 12.)

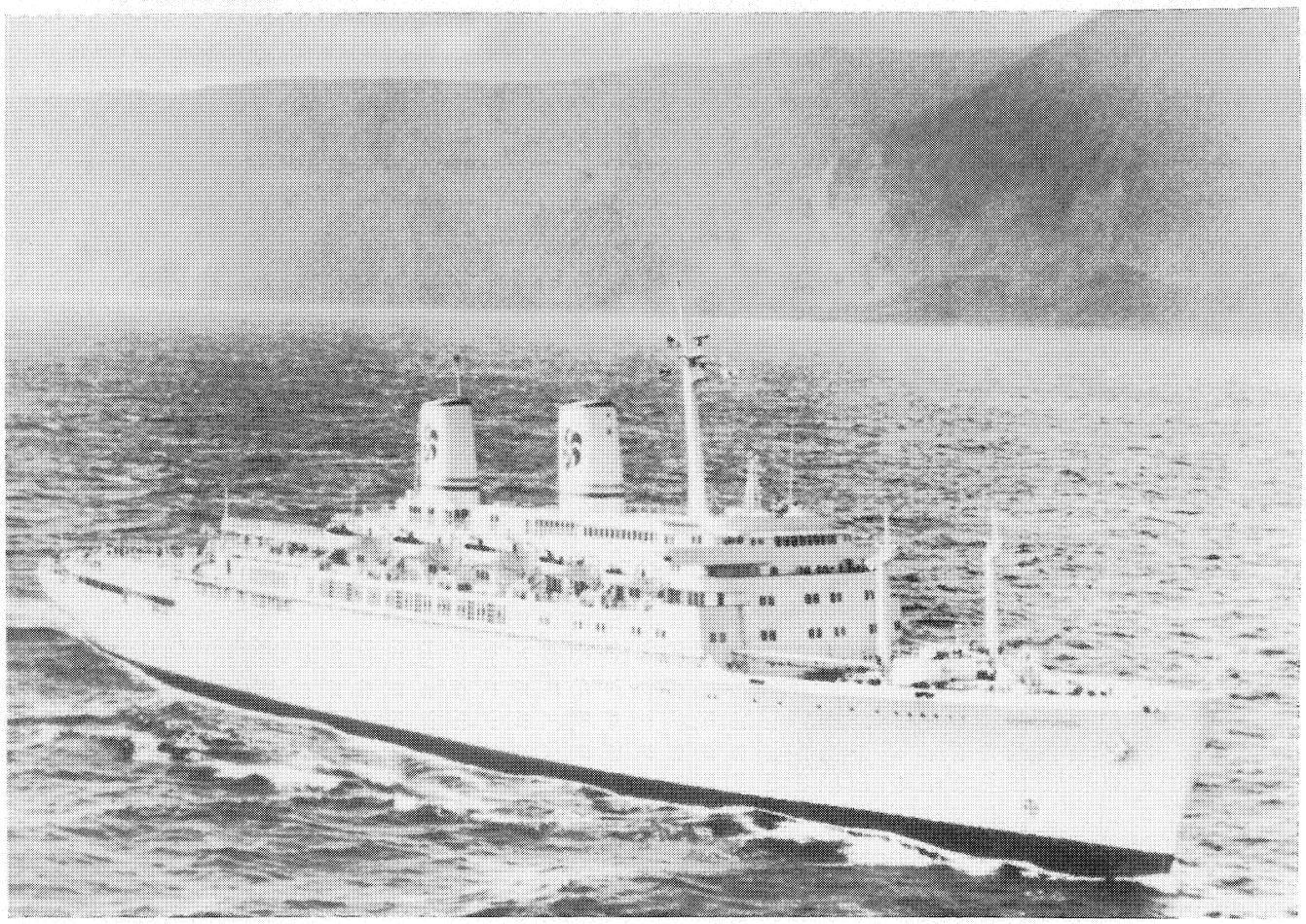
Commercial cargoes carried by ships of all flags in the U.S. oceanborne foreign trade totaled 760 million tons in calendar year 1981.

The U.S.-flag tonnage and share of total tonnage both increased over the previous year.

U.S.-flag and foreign-flag carriage of commercial cargoes transported in U.S. oceanborne foreign trade from 1972 through calendar year 1981 are shown in Table 13.

Operating-Differential Subsidy

U.S.-flag vessels which operate in essential foreign trades are eligible for operating-differential subsidy (ODS). This subsidy, which is administered by the Maritime Administration (MARAD), is designed to offset the lower ship operating costs of foreign-flag competitors. Total sub-



The S.S. CONSTITUTION joined its sister ship INDEPENDENCE in providing domestic passenger service during fiscal year 1982.

Table 10: U.S. OCEANGOING MERCHANT MARINE—SEPTEMBER 30, 1982[1]

Vessel Type	Privately Owned		Government Owned		Total	
	Number Ships	Deadweight Tons (000)	Number Ships	Deadweight Tons (000)	Number Ships	Deadweight Tons (000)
Active Fleet:						
Combo Passenger/Cargo	5	42	5	39	10	82
Freighters	86	1,150	6	51	92	1,201
Bulk Carriers	17	537	0	0	17	537
Tankers	228	12,965	2	21	230	12,986
Intermodal	128	2,705	0	0	128	2,705
Tug/Barge	11	342	0	0	11	342
LNG	8	572	0	0	8	572
Total Active Fleet	**483**	**18,312**	**13**	**111**	**496**	**18,423**
Inactive Fleet:[2]						
Combo Passenger/Cargo	3	22	44	292	47	314
Freighters	21	284	183	2,003	204	2,286
Bulk Carriers	2	49	0	0	2	49
Tankers	40	2,076	12	212	52	2,288
Intermodal	12	213	9	137	21	350
Tug/Barge	1	41	0	0	1	41
LNG	5	357	0	0	5	357
Total Inactive Fleet	**84**	**3,041**	**248**	**2,644**	**332**	**5,685**
Total Active and Inactive:						
Combo Passenger/Cargo	8	65	49	331	57	396
Freighters	107	1,433	189	2,054	296	3,487
Bulk Carriers	19	585	0	0	19	585
Tankers	268	15,041	14	232	282	15,273
Intermodal	140	2,918	9	137	149	3,055
Tug/Barge	12	383	0	0	12	383
LNG	13	928	0	0	13	928
Total American Flag	**567**	**21,353**	**261[3]**	**2,755**	**828**	**24,108**

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

[2] Includes 1 vessel in bareboat charter and 7 vessels in custody of other agencies.

[3] National Defense Reserve Fleet consists of 240 ships, of which 12 are scrap candidates other than NDRF. Excluded are 31 MARAD-owned vessels and 32 vessels owned by U.S. Navy which are in custody of MARAD's Reserve Fleet.

NOTE: Tonnage figures may not add due to rounding.

sidy outlays during fiscal year 1982 amounted to $400.7 million.

Subsidy of approximately $3.3 million was paid to one liner company for voyages in the Great Lakes trade in calendar year 1982.

ODS accruals and expenditures from January 1, 1937, through September 30, 1981, are summarized in Table 14, while accruals and outlays by shipping lines for the same period are shown in Table 15.

At the end of this reporting period, 24 operators (8 liner and 16 bulk) held 26 ODS contracts with MARAD and operated 171 subsidized vessels. (See Table 16.)

Section 614

Section 614 of the Merchant Marine Act of 1936, as amended, was added by the Omnibus Budget Reconciliation Act of 1981 (Public Law 97-35). It provides that 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 results in suspension of all attendant statutory and contractual restrictions (in the ODS agreement), except those pertaining to operation in the domestic trade.

During FY 1982 three companies operated under suspended ODS agreements.

Equity Carriers I, Inc., suspended its ODS contract on the PRIDE OF TEXAS on September 21, 1981, for one year and subsequently extended the suspension for an additional year.

Equity Carriers II, Inc., suspended its ODS agreement for the STAR OF TEXAS for at least one year, effective December 4, 1981.

Aries Marine Shipping Co. suspended its agreement on the ULTRAMAR for at least on year, beginning April 10, 1982.

Corporate/Service Changes

During fiscal year 1982, Farrell Lines, Inc., discontinued its service from the U.S. West Coast to Australia and New Zealand (Trade Route 27) and eliminated the India subservice (TR 18) from its U.S. Atlantic/Mediterranean service.

Table 11: EMPLOYMENT OF U.S.-FLAG OCEANGOING FLEET—SEPTEMBER 30, 1982[1]

			Vessel Type					
	Total		Combination Pass./Cargo		Freighters[2]		Tankers	
Status and Area of Employment	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)	No.	Deadweight Tons (000)
Grand Total	**828**	**24,108**	**57**	**396**	**467**	**7,201**	**304**	**16,511**
Active Vessels	**496**	**18,423**	**10**	**82**	**240**	**4,515**	**246**	**13,826**
Foreign Trade	185	4,502	3	28	164	3,331	18	1,143
Nearby Foreign[3]	12	225	0	0	8	70	4	155
Great Lakes-Seaway Foreign	2	27	0	0	2	29	0	0
Overseas Foreign	171	4,248	3	28	154	3,232	14	988
Foreign to Foreign	12	639	0	0	4	67	8	572
Domestic Trade	224	11,308	2	15	40	636	182	10,657
Coastwise	84	2,376	0	0	7	91	77	2,285
Intercoastal	69	4,864	0	0	3	64	66	4,800
Noncontiguous	71	4,068	2	15	30	481	39	3,572
Other U.S. Agency Operations	75	1,974	5	39	32	481	38	1,454
MSC Charter	62	1,863	0	0	26	430	36	1,433
Bareboat Charter & Other Custody	13	111	5	39	6	51	2	21
Inactive Vessels	**332**	**5,685**	**47**	**314**	**227**	**2,686**	**58**	**2,685**
Temporarily Inactive	14	315	0	0	6	79	8	236
Laid-Up (Privately Owned)	69	2,710	3	22	28	450	38	2,238
Laid-Up (MARAD-Owned) Pending Disposition[4]	10	127	2	19	7	90	1	18
National Defense Reserve Fleet[5]	239	2,533	42	273	186	2,067	11	193

[1] Excludes vessels operating exclusively on the inland waterways and Great Lakes, those owned by the U.S. Army and Navy, and special types such as tugs, cable ships, etc.
[2] Includes 22 dry-bulk vessels.
[3] Nearby foreign trade includes Canada, Mexico, Central America, West Indies, and North Coast of South America.
[4] Other than vessels in the National Defense Reserve Fleet.
[5] Includes 1 vessel of Pacific Far East Line, Inc. Excludes naval auxiliary vessels included in Tables 21 and 22.

Table 12: MAJOR MERCHANT FLEETS OF THE WORLD—JULY 1, 1982

Country	No. of Ships[1]	Rank by No. of Ships[2]	Deadweight Tons	Rank by Deadweight Tonnage
Liberia	2,220	4	146,124,000	1
Greece	2,893	1	74,629,000	2
Japan	1,770	5	63,192,000	3
Panama	2,725	2	45,820,000	4
Norway	600	9	38,809,000	5
United Kingdom	927	6	37,146,000	6
U.S.S.R.	2,449	3	21,886,000	7
United States (Privately Owned)	574	11	21,479,000	8
France	317	19	18,516,000	9
Italy	606	8	16,551,000	10
Spain	510	12	12,525,000	11
Singapore	592	10	11,932,000	12
China (People's Republic of)	750	7	10,945,000	13
Germany (Federal Republic of)	440	15	10,790,000	14
India	378	16	9,464,000	15
All Others[3]	7,359		125,945,000	
Total	**25,110**		**665,753,000**	

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

[2] Includes 279 United States Government-owned ships of 2,908,000 dwt.

[3] By number of ships, Korea (Republic of) ranked 13th with 449 vessels aggregating 8,040,000 dwt., and Netherlands ranked 14th with 445 vessels aggregating 7,768,000 dwt.

Contract Awards

No new ODS contracts were awarded during FY 1982. One existing contract was amended and restated, however.

The 20-year ODS contract held by United States Lines, Inc., was amended to reduce its term to 5 years and permit the subsidized operation of up to 19 vessels. The subsidy is limited to $37.6 million in each of the first 4 years and to $14.6 million in the final year of the amended contract.

Subsidy Rates

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

The Maritime Subsidy Board establishes tentative wage subsidy rates within 90 days of the start of each fiscal year for which such rates shall be effective. The tentative FY 1983 rates for all subsidized vessels were completed in September 1982.

In 1982, MARAD substantially completed all final 1980 subsidy rates applicable to cargo vessels and passenger vessels in liner service and to bulk vessels.

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

In the Soviet Grain Program, final rates have been completed for all 327 subsidized voyages made by U.S.-flag vessels during the program.

Soviet Grain ODS

With the termination of the 6-year maritime agreement between the United States and the Soviet Union at the end of calendar year 1981, all ODS contracts for the carriage of bulk commodities to the Soviet Union also expired.

During the life of the program, operators accrued $146.4 million in ODS. As of September 30, 1982, an estimated unpaid balance of $1.8 million remained.

China Maritime Agreement

Calculations completed during FY 1982 show that during the first year of the maritime agreement between the United States and the People's Republic of China (P.R.C.) the

Chinese bought and shipped 8.453 million tons of U.S. grain, mostly wheat. Of the total grain purchased, U.S.-flag vessels carried 34,280 tons (.4 percent), Chinese-flag vessels carried 1.652 million tons (19.5 percent), and third-flag vessels carried the remaining 6.767 million tons (80.1 percent).

During the agreement's second year, which ended in September 1982, the Chinese bought and shipped 7.027 million tons of U.S. grain. None was carried by U.S.-flag ships. Chinese-flag vessels carried 2.575 million tons (36.6 percent) and third-flag vessels carried 4.452 million tons (63.4 percent).

Trade-Ins

During FY 1982, Farrell Lines, Inc., subsidized two RO/ROs for one breakbulk vessel previously traded in against new construction under Section 510 of the Merchant Marine Act of 1936, as amended. The RO/ROs GREAT REPUBLIC and YOUNG AMERICA replaced the EXPORT AMBASSADOR which was previously traded in against the purchase price of the AUSTRAL PURITAN and AUSTRAL PIONEER. Farrell reacquired the EXPORT AMBASSADOR and subsequently traded it back in exchange for scrap pursuant to Section 510(i).

There were no other trade-ins during the period.

Passenger Service

As of September 30, 1982, U.S.-flag oceangoing passenger service was provided by the OCEANIC INDEPENDENCE, and OCEANIC CONSTITUTION, operated by American Hawaii Cruises, Inc., of San Francisco, Calif., and by four passenger/cargo vessels operated by Delta Steamship Lines, Inc.

Table 13: U.S. OCEANBORNE FOREIGN TRADE/COMMERCIAL CARGO CARRIED

Tonnage (Millions)

Calendar Year	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Total Tons	513.6	631.6	628.9	615.6	698.8	775.3	775.6	823.1	772.2	760.0
U.S.-Flag Tons	23.8	39.9	40.9	31.4	33.8	34.8	32.1	35.0	28.2	34.2
U.S. Percent of Total	4.6	6.3	6.5	5.1	4.8	4.5	4.1	4.2	3.7	4.5
Liner Total Tons	44.6	51.3	51.4	44.3	49.8	47.8	56.5	57.0	59.3	60.0
Liner U.S.-Flag Tons	9.8	13.2	15.3	13.6	15.4	14.4	16.0	15.7	16.2	16.5
Liner U.S. Percent	21.9	25.8	29.8	30.7	30.9	30.2	28.3	27.5	27.3	27.6
Non-Liner Total Tons	242.6	281.9	282.7	275.3	289.6	289.0	308.8	342.7	356.7	365.6
Non-Liner U.S.-Flag Tons	3.8	4.5	5.0	3.8	4.9	5.7	4.5	3.6	4.1	4.5
Non-Liner U.S. Percent	1.6	1.6	1.8	1.4	1.7	2.0	1.5	1.0	1.2	1.2
Tanker Total Tons	226.4	298.4	294.8	296.0	359.4	438.6	410.3	423.4	356.3	334.4
Tanker U.S.-Flag Tons	10.2	22.2	20.5	14.0	13.6	14.6	11.6	15.7	7.9	13.2
Tanker U.S. Percent	4.5	7.4	7.0	4.7	3.8	3.3	2.8	.3.7	2.2	3.9
				Value ($ Billions)						
Total Value	60.5	84.0	124.2	127.5	148.4	171.2	195.8	242.1	294.3	315.4
U.S.-Flag Value	11.1	15.9	22.0	22.4	26.4	28.0	30.7	35.7	42.3	47.0
U.S. Percent of Total	18.4	18.9	17.7	17.5	17.8	16.4	15.7	14.7	14.4	14.9
Liner Total Value	37.4	49.6	63.4	64.0	75.8	82.3	99.9	117.6	136.9	148.0
Liner U.S.-Flag Value	10.3	14.4	19.4	20.0	23.9	25.2	28.6	32.5	39.2	41.7
Liner U.S. Percent	27.7	29.1	30.6	31.2	31.6	30.7	28.6	27.6	28.7	28.1
Non-Liner Total Value	17.4	25.2	34.7	36.6	38.2	42.7	52.5	62.0	74.1	81.0
Non-Liner U.S.-Flag Value	.4	.7	.8	1.0	1.1	1.2	1.0	1.1	1.3	1.9
Non-Liner U.S. Percent	2.4	2.5	2.3	2.8	2.8	2.8	1.8	1.7	1.8	2.3
Tanker Total Value	5.7	9.2	26.0	26.9	34.4	46.2	43.4	62.5	83.3	86.4
Tanker U.S.-Flag Value	.4	.8	1.8	1.4	1.4	1.6	1.1	2.1	1.8	3.4
Tanker U.S. Percent	6.2	9.1	6.9	5.1	4.2	3.5	2.7	3.4	2.1	3.9

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

Table 14: ODS ACCRUALS AND OUTLAYS—JANUARY 1, 1937, TO SEPTEMBER 30, 1982

Calendar Year of Operation	Accruals			Outlays		
	Subsidies	Recapture	Net Subsidy Accrual	In FY 1982	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	179,727,400	4,929,404	174,797,996	–0–	174,467,393	330,603
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	233,201,233	2,217,144	230,984,089	–0–	228,038,947	2,945,142
1970	232,686,761	(1,908,643)	234,595,404	–0–	234,449,812	145,592
1971	203,401,051	(2,821,259)	206,222,310	–0–	205,261,360	960,950
1972	192,512,930	–0–	192,512,930	–0–	190,732,158	1,780,772
1973	219,569,907	–0–	219,569,907	7,487	219,475,963	93,944
1974	220,912,243	–0–	220,912,243	274,903	219,256,913	1,655,330
1975	261,806,899	–0–	261,806,899	1,076,480	260,522,404	1,284,495
1976	281,947,153	–0–	281,947,153	1,232,680	274,226,568	7,720,585
1977	300,713,310	–0–	300,713,310	2,983,299	292,576,555	8,136,755
1978	287,579,374	–0–	287,579,374	6,001,831	283,406,383	4,172,991
1979	275,253,064	–0–	275,253,064	8,655,887	273,566,845	1,686,219
1980	394,885,086	–0–	394,885,086	19,422,058	373,782,227	21,102,859
1981	336,090,737	–0–	336,090,737	114,736,036	330,897,053	5,193,684
1982	293,283,962	–0–	293,283,962	245,764,174	245,764,174	47,519,788
Total Regular ODS	$6,757,888,094	$238,186,435	$6,519,701,659	$400,154,835	$6,414,971,950	$104,729,709
Soviet Grain Programs	$146,444,444	–0–	$146,444,444	$534,878	$144,593,285	$1,851,159
Total ODS	**$6,904,332,538**	**$238,186,435**	**$6,666,146,103**	**$400,689,713**	**$6,559,565,235**	**$106,580,868**

The OCEANIC CONSTITUTION enter the domestic trade during the fiscal year following the enactment of legislation permitting it to do so notwithstanding its foreign renovation.

The Delta ships—SSs SANTA MAGDALENA, SANTA MARIA, SANTA MARIANA, and SANTA MERCEDES—offer 22 voyages a year with up to 100 berths per voyage. They depart from the West Coast and circumnavigate South America.

Limited accommodations aboard cargo ships for up to 12 passengers per vessel were available from six U.S.-flag liner operators: Farrell Lines, Inc.; Moore-McCormack Lines, Inc.; Lykes Bros. Steamship Co., Inc.; Prudential Lines, Inc.; American President Lines, Ltd.; and Delta Steamship Lines, Inc.

Three other operators have begun offering local coastal passenger services with U.S.-flag vessels: American Cruise Lines operating along the Atlantic Coast, Coastal Cruise Lines offering service on the Atlantic Coast and the Caribbean, and Exploration Cruise Lines providing service on the U.S. and Canadian Pacific Coast. The three companies have requested Title XI loan guarantees to assist in expanding their fleets. American Cruise Lines' newest vessel, the AMERICA, joined that fleet in April 1982.

Two potential passenger operators have requested Title XI loan guarantees. Seaflite, Inc., plans to introduce a surface effects vessel in the Hawaiian Islands and Seaflyte, Inc., is planning to operate a passenger jetfoil between Florida and the Bahamas.

On the inland waterways, two traditionally styled steamboats continued to provide a variety of cruises on the Mississippi and Ohio Rivers during FY 1982.

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,

Table 15: OPERATING-DIFFERENTIAL SUBSIDY ACCRUALS AND OUTLAYS BY LINES—JANUARY 1, 1937, TO SEPTEMBER 30, 1982

Lines	Accruals			ODS Paid[10]	Net Accrued Liability
	ODS	Recapture	Net Accrual		
Aeron Marine Shipping	$ 20,400,934	$ –0–	$ 20,400,934	$ 19,741,375	$ 659,559
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]	701,299,996	10,700,587	690,599,409	683,121,281	7,478,128
American Mail Lines[3]	158,240,739	7,424,902	150,815,837	150,815,837	–0–
American President Lines[3]	855,497,795	17,676,493	837,821,302	835,323,009	2,498,293
American Shipping	8,828,742	–0–	8,828,742	8,577,440	251,302
American Steamship	111,751	–0–	111,751	76,462	35,289
Aquarius Marine Co.	11,404,813	–0–	11,404,813	10,599,057	805,756
Aries Marine Shipping	23,534,182	–0–	23,534,182	22,478,906	1,055,276
Atlantic & Caribbean S/N[1]	63,209	45,496	17,713	17,713	–0–
Atlas Marine Co.	10,457,526	–0–	10,457,526	9,612,955	844,571
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.	21,916,486	–0–	21,916,486	19,823,218	2,093,268
Delta Steamship Lines	475,920,817	8,185,313	467,735,504	451,880,104	15,855,400
Ecological Shipping Co.	5,132,094	–0–	5,132,094	4,421,531	710,563[3]
Farrell Lines	499,777,725	1,855,375	497,922,350	487,615,541	10,306,809
Prudential Lines[4]	596,064,475	24,223,564	571,840,911	567,439,138	4,401,773
Gulf & South American Steamships[5]	34,471,780	5,226,214	29,245,566	29,245,566	–0–
Lykes Bros. Steamship	1,060,568,290	52,050,598	1,008,517,692	990,710,083	17,807,609
Margate Shipping	40,372,558	–0–	40,372,558	38,193,621	2,178,937
Moore McCormack Bulk Transport	32,306,580	–0–	32,306,580	30,997,929	1,308,651
Moore McCormack Lines	624,262,362	17,762,445	606,499,917	599,412,593	7,087,324
N.Y. & Cuba Mail Steamship	8,090,108	1,207,331	6,882,777	6,882,777	–0–
Oceanic Steamship[5]	114,749,126	1,171,756	113,577,370	112,775,925	801,445
Ocean Carriers	788,974	–0–	788,974	596,287	192,687
Pacific Argentina Brazil Line[1]	7,963,936	270,701	7,693,235	7,693,235	–0–
Pacific Far East Line[6]	292,197,331	23,479,204	268,718,127	260,214,755	8,503,372
Pacific Shipping Co.	10,459,038	–0–	10,459,038	9,297,522	1,161,516
Prudential Steamship[1]	26,098,640	1,680,796	24,417,844	24,417,844	–0–
Sea Shipping[1]	25,819,800	2,429,102	23,390,698	23,390,698	–0–
States Steamship[9]	233,796,721	5,110,997	228,685,724	224,703,580	3,982,144
United States Lines[7]	612,300,232	54,958,689	557,341,543	550,747,039	6,594,504
Waterman Steamship	193,731,105	–0–	193,731,105	188,769,957	4,961,148
Worth Oil Transport	10,837,276	–0–	10,837,276	9,719,342	1,117,934
Zapata Products	16,172,141	–0–	16,172,141	14,673,510	1,498,631
South Atlantic Steamship[1]	96,374	84,692	11,682	11,682	–0–
Seabulk Transmarine I & II, Inc.	4,274,712	–0–	4,274,712	4,170,444	104,268
Equity Carriers	1,063,058	–0–	1,063,058	629,506	433,552
Total Regular ODS	$6,757,888,094	$238,186,435	$6,519,701,659	$6,414,971,950	$104,729,709
Soviet Grain Programs[8]	146,444,444		146,444,444	144,593,285	1,851,159
Total ODS	**$6,904,332,538**	**$238,186,435**	**$6,666,146,103**	**$6,559,565,235**	**$106,580,868**

[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] G & SA purchased by Lykes Bros.; Oceanic purchased by PFEL.
[6] Went into receivership August 2, 1978.
[7] Ceased subsidy November 1970; subsidy resumed January 1981.
[8] Terminated December 31, 1978.
[9] Went into receivership December 4, 1978.
[10] Includes prior year adjustments between operators.

Table 16: ODS CONTRACTS IN FORCE—SEPTEMBER 30, 1982

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	21	Transpacific Services: [1]		
			California/Far East Line A (TR 29)	72	108
			California/Far East Line A Extension (TRs 17, 28, 29) [2, 3]	18	28
			Washington-Oregon/Far East Line B (TR 29)	54	80
			Washington-Oregon/Far East Line B Extension (TRs 17, 28, 29) [4]	6	—
Delta Steamship Lines, Inc. MA/MSB-353	1-01-76 to 12-31-95	11	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	13	U.S. Atlantic/West Coast South America (TR 2)	48	62
			U.S. Atlantic/Caribbean (TR 4)	22	33
			U.S. Pacific/Caribbean, East and West Coasts South America, Mexico, Central America (TRs 23, 24, 25)	25	42
Farrell Lines, Inc. MA/MSB-352	1-01-76 to 12-31-95	3	U.S. Atlantic/West Africa (TR 14-1)	20	Overall maximum not to exceed 59
		4	U.S. Atlantic & Gulf/Australia & New Zealand (TR 16)	16	
Farrell Lines, Inc. MA/MSB-482	1-01-81 to 12-31-2000	3	U.S. Atlantic/Mediterranean Service (TRs 10, 13)[5]	44	66
Lykes Bros. Steamship Co., Inc. MA/MSB-451	1-01-79 to 12-31-98	44	U.S. Gulf/U.K.-Continent (TR 21)[6]	36	60
			U.S. Gulf/Mediterranean (TR 13)	42	48
			U.S. Gulf/Far East (TR 22)[7, 8]	36	60
			U.S. Gulf/South & East Africa (TR 15-B)[7]	18	24
			U.S. Gulf/West Coast South America (TR 31)	24	48
			Great Lakes/Mediterranean-India (TR 4)	3	10
			U.S. Pacific/Far East, North (TR 29)	20	Overall maximum not to exceed 330
			U.S. Pacific/Far East, South (TR17/29)[9]	20	80
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
Prudential Lines, Inc. MA/MSB-421	1-01-78 to 12-31-97	3	U.S. North Atlantic/Mediterranean (TR 10)	24	36

(Continued on page 20)

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.

During fiscal year 1982, MARAD reaffirmed one section 804 waiver, permitting United States Lines, Inc., (USL) to charter and operate the German-flag vessel NAUTILUS between ports in the United Kingdom, France, the Netherlands, and West Germany as a feeder vessel transshipping cargo to and from USL's vessels operating on TRs 5-7-8-9/11, and to continue to charter out the Liberian-flag vessels FORMOSA CONTAINER and STRAIT CONTAINER.

No new long-term waivers were granted during the period.

International Bulk Trades

Oil freight rates continued to be depressed throughout FY 1982. Contributing factors included a world oil glut accompanied by the resumption of oil exports by Iran and Iraq, an overtonnage in very large and ultra large crude carriers, and continuing tensions in the southern Mediterranean.

Table 16: (Continued)

Operator and Contract No.	Contract Duration	Number of Subsidized Ships	Service (Trade Route/Area)	Annual Sailings Minimum	Annual Sailings Maximum
United States Lines, Inc. MA/MSB-483	6-29-82 to 6-29-87	8	U.S. North Atlantic/Western Europe (TR 5, 7, 8, 9/11)	52	105
		11	U.S. Atlantic and Pacific/Far East (TR 12/29)[10]	26	53
Waterman Steamship Corp. MA/MSB-115	6-04-71 to 6-03-91	6	U.S. Atlantic-Gulf/India, Persian Gulf & Red Sea, Indonesia, Malaysia, Singapore, Brunei (TRs 18, 17) [11]	30	40
Waterman Steamship Corp. MA/MSB-378	10-26-76 to 10-25-96	2	U.S. Atlantic-Gulf/Far East, Indonesia, Malaysia, Singapore, Brunei (TRs 12, 22, 17) [11]	8	12
Waterman Steamship Corp. MA/MSB-450	11-21-78 to 11-20-98	2	U.S. Gulf/Western Europe (TR 21)	24	35
Total Liner Trades		**144**			

[1] Dual service privileges provide that sailings made by vessels calling at ports in both California (Line A) and Washington-Oregon (Line B) count toward the minimum and maximum sailings specified for each area with the outbound and inbound portions of the sailings being counted and applied separately to determine the number of sailings serving each area.

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

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

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

[5] Farrell owns two LASH vessels, the AUSTRAL LIGHTNING and AUSTRAL RAINBOW, which are on charter to the Military Sealift Command. If the charters are terminated these vessels would again become eligible for subsidy.

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

[10] 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.

[11] 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.

Table 16: (Continued)

B. Bulk Trades:

Operator and Contract No.	ODS Agreements: Contract Effective Date	ODS Agreements: Contract Termination Date	Number of Subsidized Ships 9/30/82	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
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, Inc. MA/MSB-439	5-24-81	5-23-2001	1	Worldwide Bulk Trade	335
Equity Carriers I, Inc. MA/MSB-439	5-24-81	5-23-2001	1	Worldwide Bulk Trade	335
Margate Shipping Co. MA/MSB-134	12-28-73	12-09-93	3	Worldwide Bulk Trade	335
Moore McCormack Bulk Transport, Inc. MA/MSB-295	12-10-75	12-09-95	3	Worldwide Bulk Trade	335
Ocean Carriers, Inc. MA/MSB-167	4-03-76	4-02-96	4	Worldwide Bulk Trade	335
Pacific Shipping, Inc. MA/MSB-273	7-24-76	7-23-96	1	Worldwide Bulk Trade	335
Seabulk Transmarine I MA/MSB-440	3-27-81	3-26-2001	1	Worldwide Bulk Trade	335
Seabulk Transmarine III MA/MSB-442	9-20-81	9-19-2001	1	Worldwide Bulk Trade	335
Worth Oil Transport Co. MA/MSB-271	2-20-76	2-19-76	1	Worldwide Bulk Trade	335
Total Bulk Trades			**24**		

World average crude oil prices were consistently below official prices established by the Organization of Oil Exporting Countries (OPEC).

Conservation efforts by importing countries also contributed to the oversupply.

Tanker scrapping increased greatly during the period, and worldwide tanker lay-ups rose from 98 vessels of 16.2 million dwt. to 324 vessels of 52.8 million dwt.

However, the market remained overtonnaged at the end of the period and tanker freight rates were expected to remain depressed for some years to come.

Dry-bulk trades also began FY 1982 at depressed freight levels, which worsened throughout the year.

Nearly two-thirds of the dry-bulk tonnage on order at the beginning of the fiscal year had been delivered by the year's end, creating severe downward pressure on freight rates.

Bumper crops in countries which traditionally are heavy importers of agricultural products and ample stocks of coal and ores in countries which import those commodities combined to suggest that freight

rates were unlikely to recover much before FY 1985.

Foreign Transfers

During this reporting period, MARAD approved the transfer of 23 ships of 1,000 gross tons and over to foreign firms. Of these, 16 were sold for scrapping abroad. (See Table 17.)

Permission also was granted for the foreign transfer of 340 vessels of less than 1,000 gross tons during the fiscal year. These included 176 commercial vessels and 164 pleasure craft.

MARAD also approved the charter to aliens of 88 U.S.-owned ships of over 1,000 gross tons and 170 under 1,000 gross tons.

Pursuant to Public Law 89–346 and 46 CFR 221.21–221.30, approval was granted during the year for 48 banks to be retained on the Roster of Approved Trustees. Four new banks were approved as trustees, and three banks were removed from the roster.

During FY 1982, there were 72 sale violations involving privately owned ships, and 69 violations were mitigated or settled.

User charges for filing applications for foreign transfers and similar actions totaled $156,630 in this reporting period. This total included $2,450 in fees filed pursuant to MARAD contracts.

Environmental Protection

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

The Agency seeks to promote environmental quality through its own programs and by assisting other agencies and organizations in developing ship design, construction, equipment, and operational standards. MARAD's pollution control measures are designed to protect the marine environment from vessel discharges of oil, hazardous substances, sewage, and garbage and to protect the atmosphere from vessel stack and volatile vapor emissions.

During this reporting period, MARAD co-chaired the Interagency Review Board for the Chemical Waste Incinerator Ship Program with the Environmental Protection Agency (EPA) and the U.S. Coast Guard. The board coordinates and expedites Federal Government activities related to incineration at sea.

Table 17: FOREIGN TRANSFER APPROVALS—FY 1982

	Pursuant to Section 9 (U.S. owned and U.S. documented)		
	No. of Vessels	Gross Tons	Average Age
Tankers	11	159,009	37.2
Cargo	6	59,377	41.3
Miscellaneous	6	13,856	7.2
Total	**23**	**232,242**	**31.5**
Recapitulation By Nationality:	Number		Gross Tons
Canadian	1		7,984
British	1		1,558
Federal Republic of Germany	1		2,519
French	1		2,680
Panamanian	1		4,321
Total	**5**		**19,062**
Sales to Aliens Only	2		2,778
Sales to Aliens for Scrapping	16		210,402
Total	**18**		**213,180**
GRAND TOTAL	**23**		**232,242**

Significant progress in the Incinerator Ship Program was made in this reporting period:

- The Agency approved an application for a Federal loan guarantee to finance the construction of two U.S.-flag ships designed to incinerate hazardous chemical wastes at sea.
- The International Maritime Organization (IMO) developed design criteria, construction standards, and other safety measures for ships engaged in incineration at sea. The Coast Guard, assisted by MARAD, was instrumental in this development.
- MARAD funded a study of logistical systems to support incinerator ships. The study focused on the port facility within the transportation system.

In FY 1982, MARAD issued an *Action Plan for the Control of Asbestos Exposure and Uses in MARAD Programs.* The plan was promulgated to prevent the exposure of both Agency and non-Agency personnel to airborne asbestos fibers generated from the use and disturbance of friable asbestos materials. It mandates modified work procedures, employee training, and the medical surveillance of all MARAD employees and United States Merchant Marine Academy midshipmen.

MARAD also conducted studies of airborne asbestos fiber concentrations aboard vessels at the Beaumont Reserve Fleet and the James River Reserve Fleet. Results indicated safe ambient air fiber levels and controllable fiber releases during some maintenance and repair jobs.

Also in FY 1982, MARAD sponsored research on environmental factors influencing the use of coal as a marine boiler fuel.

In addition, the Agency contributed to the Department of Transportation/ Coast Guard priority regulatory review of the 1978 Port and Tanker Safety Act (P.L. 95–474) retrofit requirements for 20,000 to 40,000-dwt. tankers. MARAD examined the poten tial impact of the requirements on the existing U.S.-flag tanker fleet and projected shipyard business based on estimated tonnage replacement requirements.

MARAD also reviewed and commented on draft and final Environmental Impact Statements from other agencies on diverse issues involving the marine environment. Principal topics addressed were dredging and dredged spoil disposal, outer continental shelf oil and gas development, and incineration site designation.

The largest oceangoing barge built in the United States (the HSTC–1; see also photo on page iv) passes Fort Popham, Maine, at the mouth of the Kennebec River where the first oceangoing ship constructed in the United States was built in 1607. Built by Bath Iron Works for the California and Hawaiian Sugar Co., the barge later was joined with the tug MOKO PAHU, Hawaiian for "push boat."

Chapter 3

Domestic Operations

During fiscal year 1982, a new position of Deputy Maritime Administrator for Inland Waterways and Great Lakes was created within the Maritime Administration (MARAD). The deputy administrator serves as the Agency's chief spokesperson and policy resource for issues and concerns dealing with these important domestic transportation segments.

In addition to the Great Lakes and the inland waterways, domestic operations in America's waterborne commerce include the noncontiguous ocean, intercoastal, and coastwise trades. Collectively, the domestic segments of the U.S. merchant marine annually transport about one billion tons of cargo.

Great Lakes

The U.S. Great Lakes fleet totaled 143 vessels with a deadweight capacity of 3.1 million tons at the end of this reporting period. (See Table 18.) The size and deadweight capacity of the fleet remained relatively unchanged in the last year, with a net reduction of only one vessel.

The overall economic downturn which began in FY 1980 has had a severe impact on the Great Lakes bulk trades. Although coal and grain tonnages increased slightly this fiscal year, domestic shipments of iron ore declined nearly 50 percent—from 84.1 million net tons in FY 1981 to 43.0 million net tons in FY 1982.

Great Lakes ports remained active in the overseas coal export trade. Approximately 1.1 million net tons moved through the Lake Erie ports of Conneaut and Toledo, Ohio. The 1982 season was unique because all but one shipment was handled in direct transfer by self-unloading lakers to oceangoing vessels at anchor in the lower St. Lawrence River area.

The Port of Toledo reported one direct coal shipment to Sweden by ocean vessel. Additionally, this experimental shipment of 1,300 tons was loaded as a partial cargo in less than 30 minutes at Toledo.

For the first time, two U.S.-flag self-unloading Great Lakes vessels participated in the ship-to-ship coal shuttle, which previously had been solely a Canadian venture.

The sale of U.S. grain to the Soviet Union also had a positive impact on Great Lakes ports. More than 354,000 metric tons of corn moved during the 1982 Great Lakes shipping season. Oceangoing vessels were loaded to St. Lawrence draft at Milwaukee, Duluth-Superior, Chicago, Toledo, and Burns Harbor and topped off to full capacity and operating draft at Canadian St. Lawrence River ports. The top-off cargo was carried by Canadian-flag Great Lakes vessels in a feeder service from upper U.S. Great Lakes ports to the St. Lawrence transfer elevator.

Table 18: U.S. GREAT LAKES FLEET—SEPTEMBER 30, 1982[1]

	Vessels	Gross Registered Tons	Estimated Deadweight Tons
Total	**143**	**1,700,450**	**3,099,179**
Bulk Carriers	128	1,631,147	3,057,726
Active	47	621,947	1,116,516
Temporarily Inactive	26	476,220	993,710
Laid-Up (Inactive for more than one year)	55	532,982	947,500
Tankers	6	29,326	41,453
Active	4	18,043	25,480
Temporarily Inactive	2	11,283	15,973
Others[2]	9	39,975	[3]
Active	1	4,244	
Temporarily Inactive	5	15,854	
Laid-Up (Inactive for more than one year)	3	19,877	

[1] Self-propelled vessels of 1,000 gross tons and over (including the integrated tug/barge vessel PRESQUE ISLE of 57,500 deadweight tons which, for operations purposes, is considered a self-propelled vessel).

[2] Includes railroad car ferries, auto ferries.

[3] Not available.

Inland Waterways

During calendar year 1981 (the latest year for which figures were available), 613.9 million tons of traffic moved on the inland waterways of the United States, down from 629.1 million in 1980. The cargo consisted primarily of bulk commodities and raw materials.

Over 360 million tons, or 58.7 percent of the total annual shipments, were energy products (including coal, coal products, crude oil, and petroleum products). Approximately 36.9 million tons of chemicals and allied products were shipped. More than 65.9 million tons, or about 10.7 percent of the total inland shipments, were farm products.

Reduced demand for inland barge services continued in FY 1982, contributing to a general oversupply of hopper barges. In an effort to assist operators in reducing the size of their fleets, MARAD notified American embassies that barges were available for foreign sale. The possibility of using barges to store surplus grain also was investigated.

Public Law 95–502 (approved October 21, 1978) imposed a fuel tax on vessels in commercial waterway transportation, initially 4 cents per gallon, effective October 1, 1980. The tax increased to 6 cents per gallon on October 1, 1981. It will increase to 8 cents per gallon on October 1, 1983, and reach the 10-cents-per-gallon maximum provided by the law on October 1, 1985.

In FY 1981, $18.7 million of collected taxes and earned interest was placed in The Inland Waterways Trust Fund. By the end of FY 1982, the fund totaled $56.5 million.

A study of inland waterway user taxes and charges, as required by P.L. 95–502, was submitted to the Congress in FY 1982.

Domestic Ocean Trades

There were 224 large, self-propelled merchant vessels with a carrying capacity of 11.3 million deadweight tons (dwt.) operating in the U.S. coastwise, intercoastal, and domestic offshore trades as of September 30, 1982. This reflected a net decrease of 11 vessels but a net increase of 400,000 dwt. from FY 1981 totals.

Seven new ships and integrated tug/barge units were added to the domestic oceangoing fleet during this reporting period, including the 37,500-dwt. product tankers EILEEN INGRAM and SIERRA MADRE, the 42,000-dwt. product tanker OGDEN HUDSON, the 47,000-dwt. integrated tug/barge product tanker units JACKSONVILLE and GROTON, the oceangoing hopper dredge STUYVESANT, and the 37,200-dwt. dry-bulk integrated tug/barge unit MOKU PAHU.

The increase in deadweight tonnage resulted from re-entry into domestic trading of a number of tankers which had been in other trades at the end of FY 1981.

Two new roll-on/roll-off services between the U.S. mainland and Puerto Rico were initiated during the reporting period. The Puerto Rico Maritime Shipping Authority began offering weekly service from New Orleans, La., to San Juan, P.R., with two of its trailerships. The Trailer Marine Transport operation of Crowley Maritime Corp. entered the North Atlantic with a weekly trailer barge service from Philadelphia (Pennsauken, N.J.) to San Juan.

In the Alaskan crude oil trade, during the fiscal year 56 U.S.-flag and eight foreign-flag tankers lifted 81 million long tons, an increase of 3.4 million long tons, or 4.4 percent, from a revised FY 1981 level of 77.6 million long tons. The tankers made a total of 695 voyages from Valdez. The U.S.-flag vessels served ports in the lower 48 States, Alaska, Hawaii, and Puerto Armuelles in Panama (for transshipment), while the foreign-flag ships served the U.S. Virgin Islands directly via Cape Horn.

Due to a temporary lack of domestic trade tankers available for service in the Alaskan oil trade in FY 1982, MARAD granted permission for six very large crude carriers built with the aid of subsidy to enter the domestic trade on a short-term basis. Federal laws and regulations permit the transfers, under certain conditions, for up to 6 months of any 12-month period. A pro rata payback to the Government of construction-differential subsidy for the time spent in domestic service is required.

The market share of U.S.-flag tankers in the Virgin Islands refined products trade during the year declined from 30 percent to 28 percent.

The U.S. Customs Service may waive compliance with the Jones Act (46 U.S.C. 883) provision that cargo be carried between U.S. points only by vessels built, owned, and registered in this country. In considering a waiver request, the Service requests MARAD's comments, including advice as to the availability of suitable U.S. vessels for the cargo movement. During FY 1982, four such requests were received and responses completed. The proposed movements included potable water within Puerto Rico, loaded river barges across the Gulf of Mexico on board a submersible ocean barge, a floating drydock from the Gulf to the East Coast on board a submersible ocean barge, and launch of an offshore drilling jacket which was to be delivered in the Gulf of Mexico.

Through MARAD efforts in locating a qualified U.S. vessel or arranging alternative shipping, one of the requested waivers was denied and a second request was withdrawn. No U.S. vessels could be arranged in the remaining two cases and national defense considerations led to approval of waivers by the Customs Service.

Charter Market Activity

The two key trades for U.S.-flag tanker owners continued to be the Alaskan crude oil trade and the U.S. Gulf to U.S. Atlantic Coast or "upcoast" petroleum trades.

The Alaskan oil trade provided stable employment for the domestic tanker fleet in FY 1982. The Trans-Alaska Pipeline slightly increased its daily flow rate to about 1.6 million barrels of crude oil for ocean transport.

The principal development in the trade was the completion of an 80-mile crude oil pipeline across Panama to carry Alaskan crude oil to the Caribbean coast. The pipeline, which is expected to displace 8 to 10 small U.S.-flag tankers from the Alaskan oil trade, has a design capacity of about 800,000 barrels per day. Although this is sufficient to eliminate the need for ships carrying Alaskan oil through the canal, U.S.-flag tankers still will be required to transport the crude oil from the Caribbean terminus of the pipeline to the U.S. Gulf and East Coasts. The pipeline is expected to become fully operational during the first half of FY 1983.

Despite the negative effect of the pipeline on smaller tanker employment, there continues to be a shortfall of large tankers in the trade.

In the upcoast petroleum market during this reporting period, activity was slowed by unusually low product demand, low levels of refinery utilization, more rapid than normal stock drawdowns, and declining product prices. By the close of FY 1982, freight rates in the "spot" (single-voyage) market began to move slowly upward with the normal seasonal increase of heating fuel movements to East Coast consumers. Although the majority of the tankers involved in this trade are proprietary vessels either owned or long-term chartered and operated by the oil companies, a significant single voyage market continued for independent tanker operators as the year closed.

Trade Studies

At the request of the U.S. Coast Guard, MARAD prepared an analysis of proposed Coast Guard user charges. The effects of different types and levels of charges on domestic ocean and Great Lakes shipping were examined, drawing upon vessel movement information extracted from Corps of Engineers waterborne trade data tapes.

Delivered the previous year, the M/V WILLIAM J. DELANCEY in 1982 established a new record for the largest cargo of ore ever carried on the Great Lakes. The 1,000-foot self-unloading vessel has a capacity of 67,500 deadweight tons.

Chapter 4

Market Development

The Maritime Administration (MARAD) engages in a comprehensive marketing program designed to increase U.S.-flag participation in the Nation's oceanborne foreign commerce.

Marketing Program

During fiscal year 1982, trade specialists assigned to nine strategic locations throughout the country continued consultations with the transportation policymakers of firms engaged in foreign commerce, promoting the use of U.S.-flag ships.

Voluntary reports from shippers and carriers indicate that in the past 10 years the marketing program has produced more than $233 million in ocean freight revenues for U.S.-flag vessels that otherwise would have gone to foreign carriers.

MARAD's Shipper Information and Market Lead Systems, designed to enhance the competitive marketing ability of U.S.-flag carriers, were used extensively in FY 1982.

Through marketing contacts and interviews conducted by market development trade specialists, the Shipper Information System provides trade intelligence concerning U.S. shippers and commodities. During the year, it generated 41 specialized reports in response to requests from U.S.-flag carriers, in addition to serving the Agency's own requirements.

The Market Lead System draws on market intelligence from private and Government sources. In FY 1982, it identified more than 2,400 individual business opportunities for U.S.-flag operators.

MARAD also sponsored and participated in seminars, meetings, and workshops which brought together U.S.-flag carriers, shippers, and other maritime interests to stimulate greater use of U.S.-flag vessels and increase exports. For example, the Agency's Great Lakes Region market development office sponsored forums in Akron, Ohio, and Pittsburgh, Pa., bringing together shippers, carriers, and ocean rate conference representatives to discuss current issues affecting the use of U.S.-flag ships.

The marketing program continued to focus attention on the need to improve and expand U.S.-flag fleet capability for the carriage of bulk cargoes and the large portion of U.S. foreign trade which moves under contract carriage rather than in liner vessels.

Market Analysis and Planning

The primary goal of MARAD's Market Analysis and Planning Program is to enhance the U.S.-flag fleet's competitiveness by improving its revenue and profitability. The program also assists in developing Agency policy on major issues with market implications, gauging the health of the industry, and guiding development of effective programs.

Prepared under a MARAD contract, the report *The Implementation of the U.N. Code of Conduct for Liner Conferences: A Study of U.S. Options,* was completed during the year.

Also completed was a report on U.S. imports and exports transshipped through Canada.

In addition, a strategic planning model was developed to predict changes in operators' market shares based on shippers' responses to improvements in services such as transit time, frequency, and reliability.

In the area of market planning, MARAD jointly sponsored with industry a project to develop *A Guide to Strategic Planning for the U.S. Liner Industry.* The Agency also began a study to assess the feasibility of competitive U.S.-flag operation of combination ships capable of transporting both bulk and containerized cargoes. Such ships would provide greater commercial flexibility and upgrade the U.S. military sealift capabilities.

U.S.-U.S.S.R. Bilateral Cargo

The U.S.–U.S.S.R. Maritime Agreement terminated on December 31, 1981.

During calendar year 1981, one U.S.-flag liner operator provided direct shipping service to the Soviet Union and three other operators participated in transshipment services. U.S.-flag ships carried 68,114 tons while Soviet ships carried 52,774 tons of the total 215,212 long tons of liner cargo which moved in this trade.

The U.S. accountable liner share for calendar year 1981 resulted in freight revenues totaling $9,511,105, compared with a Soviet share of $8,508,963.

Late in the year, discussions between the United States and the Soviet Union on the possible renewal of the maritime agreement were suspended.

Preference Cargoes

MARAD is responsible for monitoring, and reporting to Congress, compliance with the cargo preference laws of the United States. MARAD encourages Federal Agencies to use U.S.-flag vessels to the maximum.

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 (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.

The Department of Defense (DOD) administers the Military Transportation Act and submits bills-of-lading data on DOD programs, including the Military Assistance Program (MAP), to MARAD.

To assure that the cargo preference laws are followed, MARAD monitors the shipping activities of 67 Federal Agencies. With the exception of 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.

An interagency liaison program and a computerized reporting system enabled MARAD to process 21,530 bills-of-lading for 1981. These covered civilian Agencies, some DOD contractor shipments, Eximbank, and most Foreign Military Sales (FMS) cargoes. The equivalent of 1,868 bills-of-lading covering MAP, FMS, and Troop Support also were processed, using DOD computer tapes.

Some 1980 shipments for which documents were received too late to be included in calendar year 1980 statistics are included in this report. Total documentation, including DOD bill-of-lading equivalents processed by the computer, increased by 67.1 percent over 1980 levels.

U.S.-flag participation in the carriage of preference cargoes during 1981 is summarized in Table 19. There was an increase in the U.S.-flag revenue of 37.1 percent and U.S.-flag tonnage of 167 percent as compared to 1980 levels in the carriage of P.L. 664 cargoes. The increase in revenue is attributable to gains in the Strategic Petroleum Reserve program and the USDA P.L. 480 Title I program.

Table 19: GOVERNMENT-SPONSORED CARGOES—CALENDAR YEAR 1981[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
Action	14	11	10	91
Agency for International Development (AID):				
Loans and Grants	62,974	1,309,537	483,691	37[2]
P.L. 480—Title II	142,092	1,568,003	929,801	59
Department of Agriculture:				
P.L. 480—Title I	166,467	3,659,828	1,550,275	42[2]
Other USDA Programs	14	173	12	7[3]
Department of Commerce:				
Industry and Trade Administration	86	96	84	88
Other Agencies	39	1,383	1,373	99
Department of Defense:				
Military Assistance Program	2,492	5,753	3,068	53
Foreign Military Sales Credit	32,073	97,254	70,675	73
Corps of Engineers—NEGEV	3,594	14,788	12,551	85
Department of Energy:				
Bonneville Power Administration	390	11,011	4,946	45[2]
Strategic Petroleum Reserve	74,959	13,835,042	5,782,272	42[4]
Department of Health and Human Services	25	50	37	74
Department of the Interior:				
Bureau of Reclamation	152	681	681	100
Other Agencies	11	31	10	32[2]

(Continued on page 29)

Table 19: (Continued)

Shipper	U.S.-Flag Revenue ($1,000)	Total Metric Tons	U.S.-Flag Metric Tons	Percentage U.S.-Flag Tonnage
Department of Justice	24	126	109	87
National Aeronautics and Space Administration	712	5,830	3,198	55
Tennessee Valley Authority	1,605	16,437	10,842	66
Department of the Treasury:				
Chrysler Corporation	2,743	25,574	13,267	52
Other Agencies	3	4	3	75
Department of Transportation:				
Federal Highway Administration	349	4,880	1,367	28[2]
Urban Mass Transportation Administration	2,481	8,551	3,484	41[2]
Other Agencies	12	9	8	89
U.S. Information Agency	466	1,333	981	74
Department of State:				
Sinai Support Mission	42	49	37	76
Foreign Building Office	720	5,604	4,303	77
Other Agencies (does not include AID)	4,436	7,512	5,773	77
Other Agencies	15	89	15	17[3]

Public Resolution 17 Cargoes:

	Total Freight Revenue	U.S.-Flag Freight Revenue	Percentage U.S.-Flag
Export-Import Bank	$93,756,844	$61,563,322	65.7

[1] Includes civilian agencies plus Department of Defense Foreign Military Sales Credit Program, Military Assistance Program, and U.S. Army Corps of Engineers—NEGEV. Other Department of Defense cargoes not included.

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

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

[4] MARAD monitors the SPR program on the basis of long-ton miles (LTM). In CY 1981, this program provided a total of 66,141,187,000 LTM of which U.S.-flag carriers derived 16,825,037,000 LTM or 25 percent. These statistics exclude Alaskan North Slope (ANS) cargoes. (ANS U.S.-flag revenue amounted to $105,470,064 and 24,197,449,000 LTM.)

Department of Defense

U.S. revenues from DOD's FMS program increased from $21.9 million in 1980 to $32.0 million in 1981, an increase of 46.1 percent. The U.S.-flag share of the FMS tonnage increased from 55,667 metric tons to 70,675 tons, an increase of 27 percent.

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 1981, 230.3 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 long-ton miles would be used to determine compliance.

In calendar year 1981, U.S.-flag tankers carried foreign-procured cargo which resulted in 16.8 billion long-ton miles (25.4 percent) and their operators received $75 million in revenue (58.9 percent).

Additionally, U.S.-flag tankers carried Alaska North Slope crude oil for the SPR, which resulted in 24.2 billion long-ton miles and revenue of $105.5 million. MARAD and DOE disagreed as to whether the Alaskan oil should be included in Cargo Preference Act compliance statistics. Discussions to resolve the matter were underway as the reporting period ended.

Export-Import Bank

Public Resolution 17, 73rd Congress (P.R. 17), requires that all cargoes generated by the Eximbank be shipped on U.S.-flag vessels

unless a waiver has been granted by MARAD. Statutory waivers are granted when U.S.-flag vessels are not available at reasonable rates. General waivers are granted to permit vessels of recipient nations to carry up to 50 percent of the ocean cargoes generated by Eximbank loans, provided that the U.S.-flag carriers do not experience discrimination in trade with the recipient nation.

Total ocean revenue in the Eximbank program increased from $87 million in 1980 to more than $93.8 million in 1981. U.S.-flag ocean freight revenue decreased from $65.3 million to $61.6 million over the same period while the percentage of U.S.-flag revenue dropped from 75 percent to 65.7 percent.

The 9,500-deadweight-ton tug/barge AMOCO GREAT LAKES/AMOCO MICHIGAN was built in 1982 by Bay Shipbuilding Corp. for Amoco Oil Co. for service on the Great Lakes.

Chapter 5

Port and Intermodal Development

During fiscal year 1982, the Maritime Administration (MARAD) produced its first annual assessment of the status of the U.S. public port industry. The Agency also provided research and technical planning assistance to State and local port authorities and private industry.

In the intermodal area, MARAD continued its cooperative efforts with port agencies' terminals to demonstrate and implement a prototype container terminal control system. It also identified trends in intermodal minibridge operations and produced an updated inventory of American intermodal equipment.

Annual Report on Ports

Under Section 2, Public Law 96-371, enacted October 3, 1980, the Secretary of Transportation is required to submit an annual report to the Congress on the condition of public ports of the United States. The first report was issued in September 1982 and identified problems which confront ocean, Great Lakes, and inland waterway ports in adjusting to technological, economic, financial, environmental, and legislative changes.

Port and Waterway Development

During the fiscal year, MARAD supported efforts to reduce constraints on dredging and recover the costs of dredging and maintaining our Nation's navigable channels. The Agency also participated in Government-industry efforts to increase U.S. coal exports and contributed to projects and studies designed to assess existing and potential U.S. port capabilities.

Technical Port Assistance

MARAD provided technical assistance through a number of programs and projects dedicated to improved port planning and operations. This involved the development of several analytical research tools and techniques for improving planning, productivity, and the general efficiency of port management and terminal operations.

The Agency initiated a program to provide port marketing assistance to U.S. ports. The program includes data and analytical tools developed through research efforts and special projects with broad industry applications. Individual ports can use such tools to formulate or enhance their own marketing strategies.

MARAD produced a pricing formula providing U.S. ports with a guide for establishing "reasonably compensatory" tariff rates for using public marine terminal facilities. The formula is designed to determine benchmark prices for the use of piers, wharves, docks, and cranes, and the leasing of terminal facilities.

During FY 1982, a MARAD team surveyed the St. Louis Metropolitan Port at the invitation of the Port Administrator of the City of St. Louis Port Authority. The inspection was followed by discussions and briefings on MARAD's research and analytical port planning tools being considered for use by the Port of St. Louis.

Planning Program

MARAD continued its cost-shared port and intermodal planning program. This effort includes cooperative master planning studies with local, State, and regional port agencies and associations; port planning information systems and data base development; and economic impact and financial analyses.

The following projects were completed during the year:

- *San Francisco Bay Area Seaport Plan*—Developed a coordinated master plan for seaports in the San Francisco Bay. The approved plan provides the basis for future Bay Area development.
- *Regional Port Impact Model*—Designed a flexible, self-contained analytical planning tool to enable U.S. ports to prepare regional economic impact assessments and to undertake policy simulations based on changes in a port's activities or its economic environment.
- *Usage Pricing for Public Marine Terminal Facilities*—Created a formula to derive reasonably compensatory prices for use of public marine terminal facilities, providing a benchmark for comparative analyses of port terminal tariff rates.

These projects were initiated during FY 1982:

- *Port Planning Information System*—To create an integrated and automated port planning analysis system, incorporating various port-related data bases, terminal capacity, facility requirements, vessel movements, and economic impacts.
- *Port Economic Impact Kit*—To revise an existing kit, simplifying its methodology and adapting various sections to software programs suitable for micro-computers or desk-top calculators. The kit enables small and medium-sized ports with limited resources and personnel to make port economic impact assessments.
- *Public Port Financing in the United States (Update)*—To update an existing public port financing study which addresses port development and expansion. Present financing methods, problems, and alternatives will be emphasized and foreign financing methods noted.

- *Port Risk Management Manual*—To develop a guide for solving common risk management problems and provide a reference on port risk management techniques.

During the year, work on the following projects continued:

- *Delaware River Regional Port Study*—Analyzes long-range port development needs for the Delaware River. Under the management of the Delaware River Port Authority, the study involves four major cities and two counties.
- *New York-New Jersey Regional Port Planning Study*—Analyzes cargo terminal needs and uses of city-owned piers, wharves, docks, and waterfront, including intermodal services and future facility sites. The study is managed by the City of New York, assisted by the cities of Bayonne, Elizabeth, Jersey City, and Hoboken, N.J.
- *Maryland Statewide Port Planning Study*—Analyzes economic, environmental, and institutional impacts on port development within Maryland. The study encompasses cargo demand, terminal capacity, and intermodal connections and services.

Operations Planning

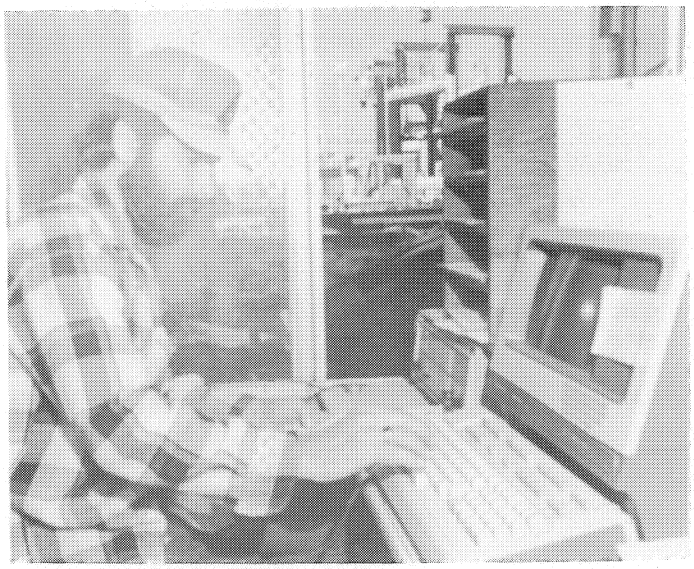
As in its planning program, MARAD shares the costs of its port and intermodal operations program with industry participants and with other Federal and State agencies. The program helps port and terminal operators improve productivity in the operation of port terminal facilities, equipment, and waterways.

Several projects were completed during FY 1982:

- *Port and Waterway User Fees*—Investigated effects of proposed U.S. Coast Guard fee structure on port and vessel operations and on foreign and domestic trades. The study was undertaken at the request of the Coast Guard.
- *Tonnage Tax and Customs Revenue Uses*—Analyzed Federal revenues collected from tonnage taxes and import duties as an alternative means of funding channel maintenance and improvements. The study was made in response to a request to the Secretary of Transportation from a private port industry group.
- *Joint Exercises with Military Traffic Management Command (MTMC)*—Conducted joint exercises with MTMC to evaluate procedures for marshalling commercial motor and rail transportation to meet Department of Defense needs in a contingency prior to a national emergency declaration.
- *Inventory of American Intermodal Equipment*—Conducted annual inventory of intermodal equipment owned by U.S. steamship and container leasing companies.
- *International Shipborne Barge Register*—Produced a reference identifying shipborne barges engaged in international trade.
- *Inland Waterway Port Operations Model*—Developed model to study operating characteristics of inland waterway port facilities. Produced by the University of Tennessee under MARAD's University Research Program, the model can estimate port capacities and cost and time associated with port operations at various cargo levels.
- *Inland Waterway Fleeting Operations Evaluation Model*—Developed model to examine site and operational alternatives to provide efficient fleeting services to line-haul tows or for dock delivery operations while minimizing harbor congestion. Model was developed and implemented by Washington University, St. Louis, Mo., under MARAD's University Research Program.
- *Tanker Berthing Evaluation*—Evaluated tugboat performance during tanker berthing maneuvers and provided data to define changes in tugboat thrusting capability experienced as a tug interacts with a slowly moving tanker. The project was jointly funded by MARAD and the Coast Guard.
- *National Vessel In-Port Locator System (VIPLOC)*—Demonstrated at the San Francisco Marine Exchange a computer-based system for vessel locations in ports. The cost-shared system will be used by the National Association of Marine Exchanges to develop nationwide vessel traffic reporting capability.

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

- *U.S. Stevedoring/Terminal Operator Industry Study*—Provides an economic profile of the stevedore/terminal operator industry. Data have been gathered with the cooperation of the National Association of Stevedores. The Port Authority of New York and New Jersey is producing economic impact data on equipment investment, jobs, income, taxes, and expenses.
- *Coal Export Terminal Design Criteria for Large Shallow Draft (LSD) Ships*—Involves development of design criteria for coal terminal shiploading facilities for LSD and wide-beam ships.
- *Lightweight Tug Firefighting Module Evaluation*—Tests lightweight firefighting module in various operational modes. The economic and operational feasibility of temporarily mounting air-transportable pump and monitor modules on commercial tugs to combat waterfront or shipboard fires was previously demonstrated. Evaluation was continuing in a joint venture with the U.S. Navy and National Aeronautics and Space Administration.
- *Dredging and Dredge Disposal*—Investigates new methods for dredging and dredge disposal in U.S. ports.
- *Multipurpose Harbor Service Craft Evaluation*—Provides technical evaluation of the City of Tacoma's high-speed, surface effect ship as a multipurpose harbor service craft. The results of operational tests during simulations will provide port city fire service organizations, port authorities, and State and Federal agencies with information on a cost-effective marine fire protection tool.



The Marine Terminal Automated Management System (MTAMS) became fully operational at the Port of Oakland, Calif., during FY 1982. Developed as a MARAD cost-shared project, MTAMS provides a computerized inventory of containers, cargo, chassis, and locations. Shown here, a computer operator makes container location assignments at Oakland's Seventh Street Public Container Terminal. MTAMS has also been adapted by the ports of Tacoma, Wash., and Portland, Oreg.

Chapter 6

Research and Development

Through its research program, the Maritime Administration (MARAD) strives to make the U.S. maritime industries, including shipbuilders, ship operators, ports, and waterways, more productive, innovative, and competitive. This research addresses problems common to U.S. shipyards and operators but which individual organizations could not address on their own.

Government-industry cost sharing is a key element in this cooperative program. During fiscal year 1982, MARAD committed $9.6 million to research projects. Industry contributed an additional $4.5 million. This funding encompassed projects dealing with shipbuilding, ports, cargo handling and deep sea, Great Lakes, and inland waterways shipping operations. Funding for programs designed specifically for the Great Lakes totaled $53,000.

The research and development (R&D) contracts and cooperative agreements awarded by MARAD in FY 1982 are listed in Appendix III.

Shipbuilding

Early projects in the National Shipbuilding Research Program, begun in 1971, developed specific pieces of equipment to assist in ship construction. Recent projects, including those underway in FY 1982, have been aimed at making the entire shipbuilding process more efficient and productive.

Among these initiatives are projects to improve the integration of ship design with ship production. Increased coordination between engineering and actual construction is expected to result in more efficient planning and less rework. In FY 1982, MARAD initiated the development of a *Design for Production Manual* to support the integration of design and production.

Developments in industrial engineering also play a larger part in the shipbuilding process. While ships are not built on an assembly line in the usual sense, many of the strides made in factory production can be applied in shipyards. An example is the concept of process lanes. Certain subassemblies move from station to station so that specialized workers at each station can perform particular tasks on the assembly. This is done in a planned and orderly way so that schedules can be maintained and work quality remains high.

A project to describe the process-lane concept and how to implement it was initiated by MARAD during FY 1982. Larger assemblies, modules, and so-called production "zones" were outfitted in a variation of this assembly-line method. Using new techniques, these zones are produced in series. Each zone is completely outfitted before it joins the hull, thereby eliminating the costly and time-consuming process of system-by-system outfitting. Zones may be used for different ship types but are standardized and benefit from multiple production.

To get the greatest benefit from the zone-outfitting system, procurement procedures for timely delivery of material and equipment are essential.

A project initiated during FY 1982 details how to specify, buy, and/or subcontract for outfitting materials to support the zone outfitting concept.

Both equipment standards and labor standards were emphasized during this reporting period. In cooperation with the American Society for Testing Materials, a series of industry consensus standards for ship components was introduced. Eventually, such standards are expected to cover everything from handrails to bidding specifications. The labor standards devised enable shipbuilders to track costs and detect overruns in time to correct them.

Efforts also were pursued to advance technology in such areas as welding, paints and coatings, production aids, and automation and robotics. In FY 1982, this research involved experiments in the use of citric acid to clean steel, the application of robotics to welding, improved aluminum welding processes, and design modeling of machinery spaces.

Ships' Machinery

During FY 1982, MARAD continued its efforts to reduce fuel consumption on ships and to develop alternatives to conventional fuel oil.

Research projects during the period focused both on steam propulsion, tradtitionally used on U.S.-flag oceangoing ships, and diesel power, common on the inland fleet and newer deep-sea vessels.

Efforts related to steam propulsion included burner design and condenser performance improvement.

Diesel projects addressed the use of heavy fuels in medium-speed engines and the development of sensors and other instruments to monitor performance and analyze various diesel subsystems.

Work continued on alternate marine fuels in response to the continued degradation of conventional fuels. As refiners draw off more high-grade fuels from each barrel of crude, the quality of the residual oil used as marine fuel is reduced.

Projects underway in FY 1982 anticipated the gradual return of coal firing for ship propulsion. In cooperation with major boiler manufacturers, MARAD searched for ways to overcome various problems associated with the handling and burning of coal. These included environmental concerns, the availability of bunkering facilities, maintenance, coal and ash handling, system dynamics, and automation requirements.

The use of coal-oil mixtures also shows potential for cutting ship-propulsion costs. Both coal-oil mixtures and petroleum coke-oil mixtures were tested for use in steam and diesel systems.

In other FY 1982 R&D efforts, MARAD explored possible savings in the use of auxiliary machinery, including ways to protect pump impellers from erosion and improve stern tube bearings and seals.

Fleet Management

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

One FY 1982 cooperative project supported by MARAD, the liner industry, and the Military Sealift Command began automating much of the information flow between shippers and carriers. Under this system, cargo can be booked from a remote terminal, allocated space on a ship, traced during the movement from origin to destination, and billed to the shipper—all through a network of interconnected computers.

Operational controls also were under development for entire fleets of general cargo ships, inland barges, and Great Lakes vessels.

In January 1982, the Agency completed a study which assessed the level of industry interest in supporting a shipping management center designed to disseminate management techniques to individual shipping companies. The researchers proposed the establishment of an exchange center which would rely upon industry for most of its support.

Other FY 1982 projects in fleet management addressed spare parts inventory, onboard equipment monitoring, and maintenance scheduling systems. In a pilot test, an onboard computer was used for loading, voyage simulation, barge rehandling, payroll, chart information retrieval, and preventive maintenance.

New projects awarded under the FY 1982 Cooperative Industry Research program included research on an interactive strategic planning model, noise control aboard small vessels, container tracking and routing, and cost control.

Ship Performance and Safety

During FY 1982, an experiment continued on copper-nickel test panels sheathing the underwater hull of the tanker ARCO TEXAS. All were found to be holding up well after a year of hard use. The panels, installed under an agreement between MARAD and ARCO Marine, Inc., actually were getting smoother. None had broken loose.

Corrosion and fouling of ships hulls are ever-present problems. If the copper-nickel sheathing concept is proven to be technically feasible, indications are that its costs could be recouped within a few years from more efficient vessel operation.

In a related project, the roughness of hulls and propeller surfaces was measured to find more conventional means of reducing efficiency losses. Roughness is measured in microns. A buildup of just a few microns appreciably increases fuel oil consumption of a ship at sea.

Efforts to develop a speed/fuel monitoring system also were continued. Ship operators using this equipment would be able to identify and measure the effects of each factor causing fuel losses—hull or propeller roughness; power-plant deterioration; wind, current or sea losses; and nonoptimum ballast and trim.

Research continued on a new technique, called ferrography, which relates the characteristics of particles from machinery wear to the machinery's condition. The technique, for example, has been used to analyze particles found in marine diesel lubricating oil. During FY 1982, this experiment was used to obtain an engine wear trend plot. The plot allows users to analyze the engine's condition and predict its future with a high degree of confidence.

The initial system design and construction of an inland waterway communications system also was begun in 1982. The objective of this project is to improve operational safety and enhance the flow of U.S. river cargo through reliable automated communications between river vessels and key shore locations. Both voice and data transmission will be used. The work is funded under a cost-shared contract between MARAD and 16 inland waterways operators.

Two other projects involving performance and safety of U.S. fleet operations were completed in this reporting period: *U.S. Merchant Ship Bridge Design Standards* to optimize future bridge configurations, and *An Assessment of Asbestos Concentrations in the James River Reserve Fleet* to ensure safe working conditions for MARAD National Defense Reserve Fleet personnel.

Cargo Systems

During this reporting period, MARAD published *A Shipper's Guide to Stowage of Cargo in Marine Containers,* which provides guidelines for specifying, inspecting, and loading cargo into marine freight containers, as well as stowing and securing the eight basic cargo types.

A study of self-unloading mechanisms for use on oceangoing dry-bulk carriers also was concluded. The report found that use of this gear is economically feasible under certain circumstances for foreign commerce.

Another project produced a guide to sources of shipboard-mounted equipment for loading and unloading dry-bulk cargo from vessels of all sizes.

MARAD sponsored an industry workshop for U.S.-flag carriers on productivity improvement in marine cargo handling during April 1982. Discussion centered on incorporating technological advances into U.S.-flag operations.

Four prototype SEA SHEDs were fabricated and subjected to structural and operational testing in FY 1982. SEA SHEDs are large transport units which will allow cellular containerships to carry a full range of oversized cargoes, including military cargo. The prototypes were

40 × 25 × 12½ feet. The American Bureau of Shipping certified the prototype for use in a four-high stack on containerships.

The design, engineering, and specifications for a 35-foot SEA SHED also were prepared and delivered to the Navy for use in its conversion of the SL-7 containerships for military use.

CAORF

MARAD's Computer-Aided Operations Research Facility (CAORF) at Kings Point, N.Y., provides sophisticated simulation of shipboard maneuvering and operational situations under controlled conditions. Different equipment, procedures, or channel configurations can be tested. Data also can be collected on the reactions of the conning officer, the most important person in the navigational process.

One FY 1982 experiment tested the effects of harbor lighting on the performance of watchstanders, while another investigated how blind spots, caused by the stacking of containers on the foredeck, affected the ability of pilots to handle a containership safely. Another study examined various buoy spacings, flashing patterns, and background lighting on a pilot's trackkeeping ability.

Port research continued in FY 1982 on the development of enlarged coal-handling facilities in and around Hampton Roads, Va. The U.S. Army Corps of Engineers plans to improve the harbor by dredging to accommodate larger and more productive colliers. CAORF is being used to determine the best channel configuration and to minimize dredging costs.

In Alabama, the Corps sponsored work using CAORF to study ship operations in the Chickasaw Creek Channel from the Mobile River to the turning basin of the Chickasaw Harbor. The facility was used to investigate the feasibility of bringing a 65,000-dwt. tanker past a swing bridge at the southern end of the channel and through a sharp turn at the end of the channel. The tests established a basis for safety guidelines governing the handling of the new, larger ships.

Another project was conducted in cooperation with an oil company and the Indonesian Government. It studied the safety impact of adding an additional LNG berth to an existing LNG facility in Port Arun, Sumatra. CAORF simulated the proposed berth and a series of dockings and undockings under a range of weather conditions.

Advanced Ship Systems

Several studies on advanced ship systems were completed during this reporting period. Topics included:

- The defense relevance of dry-bulk vessels—a fleet of multipurpose, self-sustained handy-sized vessels (mostly foreign-flag)—to serve the U.S. bulk trade. The study considered their usefulness as support vessels in various national security missions and ways to bring more of them under the U.S. flag.
- The use of ships to carry Alaskan natural gas to American and overseas markets, and the use of wide beam, shallow-draft colliers to move Alaskan Beluga coal. As a backdrop to both studies, MARAD and the Department of Energy cooperatively developed a *Marine Ice Atlas* for offshore regions of Alaska. The *Atlas* includes ice and weather data for the region.
- The movement of coal in the 48 contiguous States. Slurry pipelines and slurry-carrying vessels were studied as means of moving Southwestern Pennsylvania coal to Western European markets. The economics of such a system, with the transfer from pipeline to ship taking place at a single point mooring and terminal in Delaware Bay, were found to compare favorably with present conventional coal exporting methods.

MARAD's work on industrial plant vessels—floating facilities used for nontransportation functions—neared completion during the year. The Agency and the Shipbuilders Council of America jointly sponsored a seminar to explore the market for such facilities.

Marine Science

The Marine Science Program pursues ways to improve the hydrodynamics of merchant vessels and the integrity of their structures. The maneuvering of ships, especially large vessels, has become of greater concern because of heavier traffic conditions and narrower dredged channels. The use of finite difference techniques to predict ship maneuvering capability under such conditions was investigated during FY 1982. These preliminary experiments employed large computers to calculate the forces on both ship and water in small time increments. If successful, the techniques could be a valuable supplement to the more conventional use of ship models in test basins.

Work also continued during the period on development of more efficient propellers and sterns. A tunnel stern was studied in respect to accommodation of large, slow-turning propellers which have been shown capable of substantially improving propulsive efficiency. Since weight is a problem with very large propellers, cast hollow blades and fabricated hollow blades were among the concepts studied. MARAD research found that tandem propellers (two propellers turning together on the same shaft) could be made lightweight, oversized, and stronger by attaching the tips of the blades of one propeller to the tips of the blades of the other. Such innovations could reduce weight up to 48 percent and achieve fuel savings of up to 23 percent.

Other research continued on techniques to analyze the damage that would result from certain types of collisions. Mathematical models were used to simulate the effects of a collision on both the striking and struck vessels. The results may be used by ship designers to improve the survivability of proposed vessels.

Arctic Shipping

The fourth icebreaker voyage in a series of MARAD-Coast Guard tests to analyze Arctic shipping conditions was completed during FY 1982. The icebreaker was sent through the Bering Strait in winter conditions to portions of Alaska above the Arctic Circle. Various ice measurements, including ice resistance and pressure ridge profiles, were recorded during the voyage.

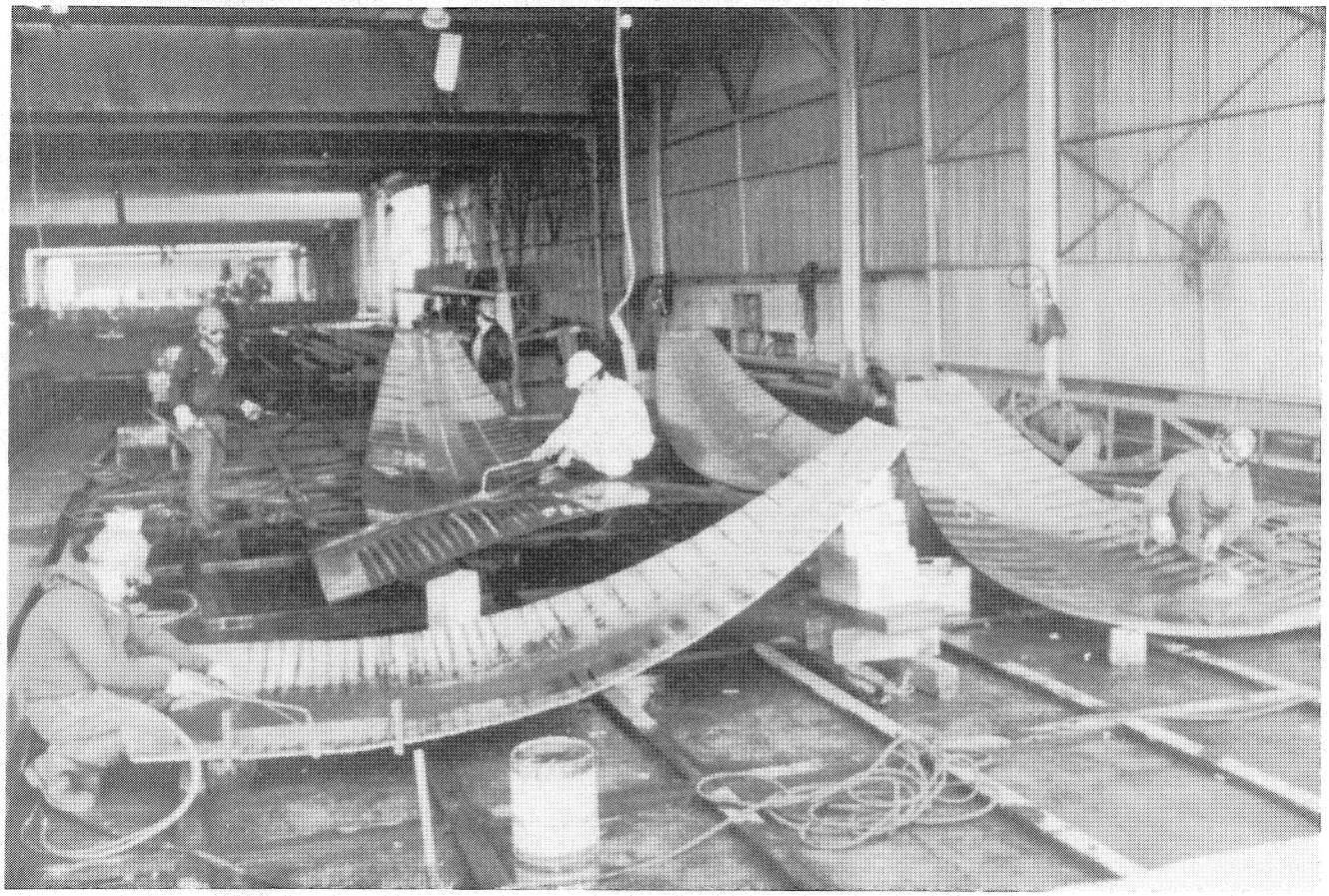
These tests are part of a multi-year data program aimed at demonstrating the feasibility of year-round marine transportation of Alaskan gas and oil. The second objective is to develop technical data and design criteria for commercial ships operating in the Arctic environment. This is a cooperative program involving the State of Alaska, the Canadian Ministry of Transport, and a number of oil companies, as well as MARAD and the U.S. Coast Guard.

University Research

For the past five years MARAD has solicited research ideas from the academic community. This research program attempts to apply research ideas from colleges and universities to maritime and marine related problems.

In FY 1982, research was completed on logistical systems to support ocean incineration of hazardous wastes, a numerical analysis of large amplitude liquid sloshing in baffled containers, the water flow induction generated by a propeller in an axially symmetric shear flow, the reliability of a microcomputer-coupled optical fiber communications network, and the deflection of hull and propeller shafting on Great Lakes ore carriers.

Research under the National Shipbuilding Research Program in fiscal year 1982 included a study of line heating, the process of forming shapes by controlled heating and cooling. Line heating was found to increase shipbuilding safety, accuracy, and efficiency.



Chapter 7

Maritime Labor and Training

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

Maritime Training

The Agency's new standardized merchant marine fire training facility near Toledo, Ohio, was opened in August 1982. The facility serves the Great Lakes and river systems of the upper Midwest. It offers technical classroom instruction as well as hands-on training. By the end of the fiscal year, 96 seamen had been trained at this facility.

Also during FY 1982, 1,387 merchant mariners were trained at MARAD's New Orleans, La., fire facility, which opened in FY 1981. In conjunction with the U.S. Navy's Military Sealift Command, MARAD sponsored firefighting and damage control courses for 2,661 seamen at Earle, N.J., and Treasure Island (San Francisco), Calif., during this reporting period.

The diesel engineering program of the U.S. Merchant Marine Academy provided a series of special diesel courses attended by 328 students in FY 1982. This program includes a foundation course approved by the U.S. Coast Guard which is equivalent to seven weeks of sea experience needed to take diesel license upgrading examinations.

To carry out the Administration's dual policy of reducing Federal spending and, whenever feasible, returning services and functions to State, local, or private control, MARAD transferred operation of its five radar training schools to private, non-profit organizations in fiscal year 1982.

The facilities, located in New York, Toledo, New Orleans, San Francisco, and Seattle, are now operated by the Seamen's Church Institute; District 2 of the Marine Engineers Beneficial Association-American Maritime Officers Safety and Education Plan; Delgado College; California Maritime Academy; and the Masters, Mates and Pilots Maritime Advancement Training, Education, and Safety Program, respectively.

Under the terms of the transfer agreements, MARAD conditionally transferred the schools' equipment and responsibility for their maintenance and operation. This condition requires each facility to offer a reasonable number and mixture of radar courses for 36 consecutive months. MARAD then will transfer full title to all equipment, including marine radar units utilizing electronically simulated visual displays.

U.S. Merchant Marine Academy

The U.S. Merchant Marine Academy in Kings Point, N.Y., trains young men and women to become officers in the American merchant marine. Midshipmen spend one year at sea on American-flag ships in addition to their classroom training.

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

The Class of 1982 included 93 third mates, 138 third assistant engineers, and 25 graduates who completed the dual deck/engine program. Among the graduates were 18 women. Of the 256 graduates, about 80 percent found employment in the maritime industry or were assigned to active duty in the U.S. Navy or Coast Guard.

At the beginning of the 1982–83 school year, the Regiment of Midshipmen included 97 women—20 of whom were expected to graduate in June 1983.

Average enrollment at the Academy was 1,104 during this reporting period.

Of 2,416 candidates nominated for enrollment in the Academy's Class of 1986, 352 were appointed.

Graduates of the Class of 1986 will be the first required to fulfill a mandatory 5-year service obligation in the U.S. merchant marine under the Maritime Education and Training Act of 1980 (P.L. 96–453). Students who breach the agreement may be called to active duty in the U.S. Navy.

In this reporting period, renovation of the classrooms, laboratories, offices, and the electrical and plumbing systems of the Academy's marine engineering building was completed, and a new 36,000-square foot addition to the building was opened.

Also in FY 1982, work began to modernize the midshipman dormitories at the Academy.

State Maritime Academies

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

The academies are located at Vallejo, Calif., Castine, Maine; Buzzards Bay, Mass.; Traverse City, Mich.; Fort Schuyler, N.Y.; and Galveston, Tex. Seven hundred six cadets graduated from six academies in 1982.

In addition to U.S. Coast Guard licenses, graduates of five of the academies receive bachelor of science degrees, and, if qualified, are commissioned as ensigns in the

U.S. Naval Reserve. The Great Lakes Academy in Traverse City awards associate degrees.

After graduation, 30 percent of the 1982 graduates found employment afloat or were serving on active duty in the Navy or Coast Guard.

Under P.L. 96–453, students who enter the State academies after April 1982 and are selected to receive an annual student incentive payment of $1,200 are subject to a mandatory 3-year service obligation in the U.S. merchant marine. The statute also permits all students to apply for midshipman status in the U.S. Naval Reserve.

MARAD provides the five seaboard academies with training vessels meeting U.S. Coast Guard and American Bureau of Shipping requirements for training cruises. The cruises, which are an integral part of the schools' curricula, fulfill MARAD/U.S. Coast Guard-required sea time for cadets to obtain licenses.

During this reporting period, a fire occurred in the engine room of the Massachusetts Maritime Academy's Training Ship BAY STATE, while the ship was moored at the school and undergoing routine maintenance. One cadet was killed and seven other people were injured.

Because of damage to the vessel, the BAY STATE could not make its scheduled January 1982 training cruise. Arrangements were made for the Massachusetts and Maine Maritime Academies to share the latter's training vessel.

Labor Relations

During FY 1982, MARAD accepted responsibility for the Seafarers Health Improvement Program (SHIP). SHIP offers a forum for labor and management to discuss seamen's medical matters. MARAD serves as moderator in the private-sector discussion, and other Government Agency representatives assist wherever possible. The most significant accomplishment during the period was adoption of industry-generated minimum physical examination standards for entry-level seafarers. These standards were subsequently forwarded to the U.S. Coast Guard for its consideration.

The National Labor Relations Board (NLRB) favored the Seafarers International Union (SIU) in a dispute with three International Longshoremen's Association (ILA) locals in Philadelphia. The right of SIU's Industrial Workers to work the Trailer Marine Transport, Inc. (TMT), barge service at Peety's Island, Pennsauken, N.J., was challenged by the ILA. The ILA argued that it previously represented such employees in the port of Philadelphia. The NLRB decision did not settle which union will eventually represent the TMT workers. SIU's claim to contractual representation of TMT's employees is being challenged by the ILA in another proceeding.

There were no major labor negotiations or work stoppages during the year.

One major maritime labor contract, that of the ILA, is scheduled to terminate in fiscal year 1983. The union president announced plans for early negotiations.

Labor Data

During this reporting period, average monthly U.S. seafaring employment in all sectors (private, Government contract and Great Lakes) decreased from 25,184 to 22,861, a 9.2 percent decline from FY 1981 (see Table 20). Meanwhile, the total workforce in selected U.S. commercial shipyards decreased by 5.9 percent, from 121,542 to 114,347, and average longshore employment declined from 46,245 to 42,380.

Merchant Marine Awards

The Merchant Marine Medals Act of 1956 authorizes the Secretary of Commerce and Secretary of Transportation to grant medals and

Table 20: MARITIME WORKFORCE AVERAGE MONTHLY EMPLOYMENT

	Average Monthly Employment in Fiscal Year:	
	1981	1982
Seafaring Shipboard Jobs:	**25,184**	**22,861**
Shipyards:	**121,542[1]**	**114,347**
Production Workers	96,648	89,968
Management and Clerical	24,894	24,379
Longshore:	**46,245**	**42,380**

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

decorations for outstanding and meritorious service or participation in national defense action.

During the fiscal year, a Letter of Commendation was approved by the Maritime Administrator for Julianne Ahlgren, Third Assistant Engineer on the USNS TALUGA. Ms. Ahlgren, a graduate of the U.S. Merchant Marine Academy and a civil service employee, suffered severe burns on April 3, 1981, after an explosion and fire in the engine room. Despite her injuries, she immediately jumped to the firing platform and began shutting off the fuel oil root valve to the burner, and then alerted ship's personnel of the fire. Ms. Ahlgren's commendation stated that she acted heroically, in the finest traditions of the sea.

Letters of Commendation also were approved for four crew members of the SS PRESIDENT GRANT. Edward J. Arechavala, Chief Mate; E.J. Martin, Bosun; Robert Vellez, Unlicensed Junior Engineer; and David S. Goire, Wiper, were recognized for their rescue of two survivors from a fishing vessel in the San Francisco Bay in 1980.

A new merchant marine fire training facility to serve the Great Lakes and river systems of the upper Midwest was opened near Toledo during the fiscal year. In addition to hands-on training, the facility provides technical classroom instruction.

Chapter 8

National Security

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

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

Reserve Fleet

Vessels of the NDRF are available for use in time and war and in non-military emergencies, such as commercial shipping crises. They include non-active merchant ships as well as naval auxiliaries. The main berthing sites are James River, Va.; Beaumont, Tex.; and Suisun Bay, Calif. (See Table 21.)

On September 30, 1982, the NDRF consisted of 303 ships. In addition, one Pacific Far East Line Roll-On/Roll-Off vanship was moored alongside the James River Reserve Fleet.

During fiscal year 1982, 30 ships were added to the fleet and 45 were withdrawn.

The number of vessels in the NDRF at the end of fiscal years 1945 through 1982 is shown in Table 22.

During FY 1982, as requested by the Department of Defense, MARAD contracted to have the 129 Victory ships in the NDRF surveyed by independent marine surveyors to validate their condition and viability as an emergency sealift resource, until they are replaced by more modern ships from the commercial fleet.

The number of ships in the fleet preservation program, which involves conventional preservation, dehumidification, and cathodic protection, increased from 237 to 245 during the period.

Ready Reserve Force

The most select component of the NDRF is the Ready Reserve Force, a joint program of MARAD and the U.S. Navy. RRF vessels can be activated for sealift operations on 5 to 10 days' notice, compared with an average of 4 weeks for other NDRF vessels.

Without advance warning, periodic activation tests are conducted to ensure military readiness of RRF vessels and to validate maintenance procedures. This operation requires activating a ship, crewing, storing, fueling, conducting 24-hour sea trials, and then positioning the ship on a military loading berth ready to load—all within 5 to 10 days.

During FY 1982, two RRF vessels were successfully activated within the allotted time as part of no-notice tests ordered by the Chief of Naval Operations.

USMER

The U.S. Merchant Vessel Locator Filing System (USMER) was established as a MARAD program in 1975. It requires all U.S.-flag merchant vessels in foreign trade and certain foreign-flag, American-owned ships to report departures, arrivals, and at-sea positions every 48 hours. MARAD uses the data to maintain a current plot of U.S. ships as the basis for marshalling of U.S. ships during emergencies.

During the conflict between the United Kingdom and Argentina involving the Falkland Islands, MARAD ordered vessels covered by USMER to submit position reports every 12 hours while transiting the danger zone. At the State Department's request, MARAD prepared daily reports of ship positions which were forwarded to the Governments of both combatants, in order to identify and protect American vessels on commercial voyages.

Also during FY 1982, plans were completed for the eventual merger of USMER with the U.S. Coast Guard's Automated Mutual-Assistance Vessel Rescue System (AMVER). AMVER has been an all-voluntary system used to coordinate search and rescue data on a worldwide basis. Under the plan, participation in AMVER would become mandatory for ships required to send USMER reports.

The combined program, to be administered by the U.S. Coast Guard, will allow ship operators to use a single report to satisfy the needs of both existing systems.

War-Risk Insurance

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

At the end of this reporting period, 1,812 binders were outstanding under this program. These binders would be effective for 30 days following termination of commercial insurance. Binders outstanding on September 30, 1982, included 642 for war-risk hull and machinery insurance; 642 for war-risk protection and indemnity insurance; and 538 for second seamen's war-risk insurance. There were 53 foreign-flag vessels covered in each category except second seamen's, in which 15 were covered.

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

Table 21: NATIONAL DEFENSE RESERVE FLEET—SEPTEMBER 30, 1982

Fleet Sites	Retention[1]	Scrap Candidates	Special Programs[2]	Totals
James River, Va.	104	15	39	158
Beaumont, Texas	47	1	2	50
Suisun Bay, Calif.	86	3	6	95
Totals:	**237**	**19**	**47**	**303**

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

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

Table 22: NATIONAL DEFENSE RESERVE FLEET, 1945–1982

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

From the start of the binder program in 1952 through September 30, 1982, binder fees totaled $1.45 million, while program expenses totaled $2.2 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 1936 act amounted to $7.5 million. As of September 30, 1982, assets of the war-risk revolving fund totaled $10.3 million.

At the request of the U.S. Navy, MARAD provides second seamen's war-risk insurance without premium charge, but on a reimbursable basis for losses incurred, as authorized by Section 1205 of the 1936 act. Crews of 5 Government-owned tankers and 13 privately owned, U.S.-flag tankers under bareboat charter to the Military Sealift Command are insured under this program. Net savings to the Navy since inception of the program are estimated to be $2.1 million.

Marine Insurance

MARAD continued to act as the marine insurance claim agent for Government-owned vessels during FY 1982. On September 30, 1982, there were 18 protection and indemnity claims outstanding; 3 were in litigation. Total settlement value of all cases was estimated to be $630,000. Three of the claims are from the Vietnam era and have an estimated reimbursement value of $258,000 from commercial underwriters. The balance of $372,000 is for the account of the United States.

The Agency 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; charterers of Government-owned vessels; and by subsidized operators.

In accordance with Section 12 of the Shipping Act, 1916, MARAD inquired into the marine insurance market, identifying domestic and foreign companies insuring and reinsuring maritime risks. In addition, MARAD provided assistance requested by American insurers regarding restrictive insurance legislation in foreign countries.

Table 23 shows war-risk and marine insurance approved in FY 1982.

Emergency Readiness

The Voluntary Tanker Agreement, which, under the Defense Production Act of 1950, is designed to provide tanker capacity to meet national defense requirements, was revised and updated during FY 1982. The agreement was established in 1950 in support of the Korean War. The revised agreement reflects changes in the statute and improves the readiness on the tanker industry to respond to military needs.

A proposed Maritime Administration regulation (46 CFR Part 340) was developed to apply priority and allocation authority provided by Title I of the Defense Production Act to certain shipping services, container services and containers, and port facilities and services. The regulation is designed to enable military needs to be met, when feasible, by existing commercial services—without having to requisition commercial vessels during low-level emergencies short of mobilization. Public comments on the proposals were being considered by the Agency at the close of the reporting period.

Exercises were conducted in FY 1982 to test MARAD procedures for supplying ships for military use in NATO and non-NATO defense emergencies. The exercises led to development of better data bases and operating procedures for tanker management, management of ship repair facilities during early phases of emergency operations, and other aspects of emergency operations.

Table 23: MARINE AND WAR-RISK INSURANCE APPROVED IN FY 1982

Kind of Insurance	Total Amount	Percentage	
		American	Foreign
Marine Hull and Machinery	$9,793,405,000	52	48
Marine Protection and Indemnity	[1]		
War-Risk Hull and Machinery	8,093,848,000	54	46
War-Risk Protection and Indemnity	8,093,848,000	54	46

[1] Protection and indemnity insurance coverage is obtained principally from international 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.

Barge-carrying vessels such as this Central Gulf LASH are valuable national defense assets.

Chapter 9

International Activities

During fiscal year 1982, the Maritime Administration (MARAD) participated in maritime discussions with the People's Republic of China (P.R.C.), and the Philippines, as well as in maritime forums sponsored by international agencies. Discussions on the renewal of the bilateral maritime agreement with the Soviet Union were suspended. The Agency continued to assist American maritime and trade interests abroad through the offices of its representatives in London, Brussels, Athens, Rio de Janeiro, and Tokyo.

International Shipping Policy Group

The Secretary of Transportation established an interagency international shipping policy group on August 5, 1982. The Maritime Administrator is a member of the group, which is chaired by the Secretary. The committee has considered a number of issues of major concern to the American maritime industry.

Maritime Discussions with the Philippines

Maritime delegations from the United States and Philippines met in Manila on August 4 and 5, 1982, to explore issues arising from attempts by the Philippines to unilaterally implement a cargo-sharing program.

U.S.-U.S.S.R. Maritime Agreement

The maritime agreement between the United States and the U.S.S.R. expired on December 31, 1981. Discussions on the renewal of the bilateral agreement were suspended by President Reagan as a result of the imposition of martial law in Poland.

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

From April 19 to 22, 1982, the director of MARAD's Office of International Activities accompanied a delegation of chief executive officers of U.S.-flag liner companies serving the China trade to Beijing. The company officers were attempting to resolve problems with which they are confronted in the service between the U.S. and the P.R.C. Meetings were held with officials of the Ministry of Foreign Economic Relations and Trade, the Ministry of Foreign Affairs, and the Ministry of Communications.

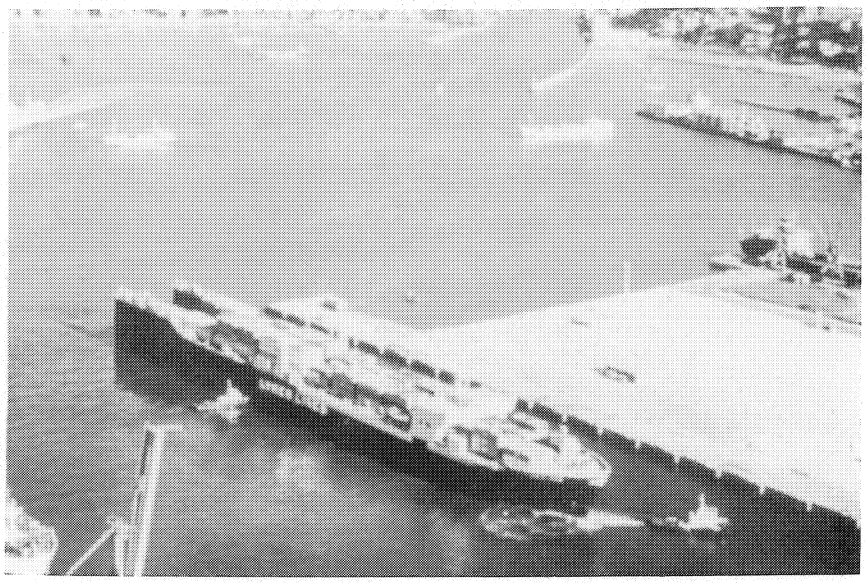
During fiscal year 1982, MARAD and shipping industry representatives inspected seven major bulk-cargo handling ports in the P.R.C. The purpose of this technical assistance mission was to enhance the implementation of the U.S.-P.R.C. Agreement on Maritime Transport by assessing opportunities and constraints U.S.-flag carrier operators face in attaining a greater percentage of the U.S.-China trade.

As the year ended, preparations were underway for discussions in Beijing related to the bilateral maritime agreement.

Other International Maritime Discussions

MARAD represented the United States Government in Mexico City, Mexico, at the Sixth Inter-American Port and Harbor Conference, a function associated with the Organization of American States (OAS). Also in conjunction with the OAS, the Agency sponsored the Fourth Seminar on Port Safety and Security, which was held in Santo Domingo, Dominican Republic.

MARAD officials attended meetings of several United Nations (U.N.) related agencies including the International Maritime Organization (IMO-formerly Intergovernmental Maritime Consultative Organization), the Organization for Economic Cooperation and Development's Maritime Transport Committee including its Special Group on International Organizations, the U.N. Conference on Trade Development's Committee on Shipping, and the



The ALMERIA LYKES is shown in the port of Bilbao, Spain, during a 1982 call. Lykes Bros. Steamship Co., Inc., began SEABEE service 10 years earlier.

Economic and Social Commission for Asia and the Pacific.

MARAD was represented on the U.S. delegation to the 16th Session of IMO's Marine Environment Protection Committee (MEPC) held in London from November 30 through December 4, 1981. Agenda items included clean ballast tanks, crude oil washing, bulk chemical cargo hazards, oil discharge monitoring equipment, penalties for MARPOL 73/78 violations, and preparation of the IMO Comprehensive Anti-Pollution Manual.

MARAD officials attended the 45th and 46th sessions of the IMO Maritime Safety Committee in London from November 11 through 18, 1981, and from March 29 through April 2, 1982. The Committee's principal effort was continued development of amendments to the 1974 Safety of Life at Sea Convention (SOLAS 1974) and the 1978 SOLAS Protocol dealing with lifesaving appliances, fire protection, and the codes for bulk chemicals and gas carriers. These amendments generally help to bring international requirements into conformity with U.S. practice and will reduce the competitive disadvantage experienced by U.S.-flag ships.

The Agency was represented on the national committees and working groups in support of IMO's work program, including the Committee on Prevention of Marine Pollution, Safety of Life at Sea Subcommittee, Committee on Ocean Dumping, Working Group on Bulk Chemicals, Working Group on Carriage of Dangerous Goods, Working Group on Ship Design and Equipment, Working Group on Standards of Training and Watchkeeping, and Working Group on Subdivision and Stability.

Additionally, MARAD was represented at the maritime related meetings of the North Atlantic Treaty Organization and attended several technical meetings of the Joint Oceanographic Assembly, the International Ship Structures Congress, the International Maritime Simulator Forum, the Inter-American Port and Harbor Conference, and the 13th meeting of the Permanent Technical United States/Japan Natural Resources Commission.

Chapter 10

Administration

Maritime Subsidy Board

The Maritime Subsidy Board (MSB), by delegation from the Secretary of Transportation, awards, amends, and terminates contracts which subsidize the construction and operation of American-flag vessels in the foreign commerce of the United States. A moratorium on any new construction-differential subsidy (CDS) funds was in effect during fiscal year 1982.

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

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

During FY 1982 the MSB met 30 times. It considered and acted on 138 items and issued 20 formal opinions, rulings, and orders. It also published 49 notices in the *Federal Register* on such matters as those requiring statutory hearings and the development and adoption of rules and regulations in the implementation of the Merchant Marine Act, 1936, as amended.

During this reporting period, the MSB took several significant actions to strengthen the American merchant marine while reducing dependence on Government subsidies.

The MSB and United States Lines, Inc., entered into an amended and restated operating-differential subsidy (ODS) agreement in June 1982. The restated agreement terminated a 20-year subsidy obligation for 4 vessels and subsituted a 5-year subsidy obligation on up to 19 vessels, with a maximum of $37.6 million in subsidy payments per year. United States Lines also became contractually obligated to construct 14 new Jumbo Econships for operation under the U.S. flag.

On December 30, 1981, the MSB discontinued its policy of granting CDS for nonessential changes in construction contracts. Under its new policy the MSB will award CDS only for changes required by an action of a regulatory body or other legal authority after the date of contracting.

Additionally, on November 10, 1981 the MSB issued guidelines for implementing newly enacted Section 615 of the 1936 Merchant Marine Act. Section 615 authorized the MSB to approve applications by ODS contractors or applicants for the acquisition, construction, or reconstruction of ships abroad for U.S.-flag operation. During the year, approvals were granted for the construction of 36 vessels and the conversion or reconstruction of 13 existing ships in foreign shipyards.

Legal Services, Legislation, and Litigation

The Chief Counsel of the Maritime Administration provides complete legal services to all Agency offices in addition to serving as a member of the Maritime Subsidy Board.

The Office of the Chief Counsel reviews all Agency actions, including maritime assistance program decisions, domestic and international shipping matters, and procurement. During FY 1982 the Office of the Chief Counsel had a primary role in activities relating to rulemaking, litigation, legislation, and citizenship.

Counseling program officials in the negotiation of assistance contracts and drafting contracts to reflect agreements continued to be a major activity. As noted above, the statutory permission authorizing construction and reconstruction of vessels abroad for subsidized operators resulted in a number of requests for contracting authority.

In addition, legal assistance was provided in the modification of United States Lines' operating subsidy agreement.

Counseling involving the Ship Financing Guarantees (Title XI) Program increased significantly in FY 1982. Although the total amount of obligations garanteed this fiscal year was less than that in FY 1981, the FY 1982 closings generally were more complex. Issuers of obligations used more sophisticated financing arrangements, such as leverage leasing and tax leasing, to maximize the economic benefits derived from vessel construction. Transactions more frequently included cross-collateralization of different Title XI financing, delivery of guarantees by corporate parents or other affiliates, or co-financing of the costs of construction with financial institutions.

Also during the year, legal assistance was provided in the revision of the Voluntary Tanker Agreement, in coordination with the Department of Justice, the Federal Trade Commission, and the Federal Emergency Management Administration. Under its terms, participating tankship owners and charterers declare their willingness to contribute vessels to the Government in the event of national emergencies. The new agreement was expected to be published in FY 1983.

Legislative work during the year covered important maritime and budgetary measures, including drafting of bills and related documents, preparation of testimony, analysis of bills, and review of Congressional correspondence. Assistance was rendered to the Secretary of Transportation in support of the Administration's regulatory reform efforts before Congress and in formulating the Administration's maritime promotional program.

The Chief Counsel also participated in the defense of lawsuits in a variety of judicial and administrative forums covering program decisions as well as contract disputes, employment claims, and personal injuries. Significant among the lawsuits relating to Agency assistance programs was the remand to the Court of Appeals following the Supreme Court decision in *Seatrain Shipbuilding*

Corp. v. *Shell Oil Co.* The case established the Agency's authority to accept a note as repayment of construction-differential subsidy.

Extensive negotiations with Pacific Far East Line, Inc., and its successor trustee in bankruptcy resulted in a settlement disposing of all disputes including Title XI financing, operating-differential subsidy, and division of sums generated by vessel foreclosures.

MARAD's decision to allow full CDS repayment and removal of domestic trading restrictions for a tanker built with CDS, the BAY RIDGE, was vacated in *Independent U.S. Tanker Owners Committee* v. *Lewis.* The Agency will be required to reconsider its decision.

The authority to establish cargo preference rates that subsidized operators could receive was upheld by the Court of Appeals for the District Court of Columbia in *Aeron Marine Shipping Co.* v. *United States,* but that court remanded the case to the Agency to remedy flaws that it found in the particular rate at issue.

In addition, the award of CDS for tankers which would support Military Sealift Command activities was sustained in *Alaska Bulk Carriers, Inc.* v. *Baldridge.*

Management Initiatives

Consistent with the Administration's objectives to reduce Government programs and employment, the Agency significantly changed its organization and internal management. During the fiscal year, the Maritime Administration:

- Centralized in Washington offices the performance of regional contracting, accounting, real and personal property management, and personnel administration;
- Established a new position of Deputy Administrator for Great Lakes and Inland Waterways to provide concentrated management of promotional activities related to those areas;
- Abolished the Office of the Administrative Law Judge and made alternative arrangements for such services as were needed;
- Transferred the operation of its five radar training schools to non-federal organizations; and
- Transferred to the Department of Transportation the Agency's computer operations and auditing functions for incorporation within centralized activities at the Departmental level.

Audits

The Office of the Inspector General, Department of Transportation, submitted no internal audit reports to the Agency during the fiscal year.

The General Accounting Office submitted one report, *Maritime Subsidy Requirements Hinder U.S.-Flag Operators' Competitive Position.* MARAD agreed with the recommendations in the report and has taken action to implement them.

Financial Analysis

The Maritime Adminstration prepared for public comment new accounting procedures and reporting requirements. The proposed rule, Uniform Financial Reporting Requirements, is a continuation of financial reporting requirements applicable to all shipping companies receiving financial aid from the Agency. The new requirements would ensure data uniformity while reducing the report from 102 to 16 pages. The information received in these reports is collected and reviewed semiannually.

MARAD uses the data collected to:

- Audit compliance with legal and contractual requirements;
- Evaluate company, industry segment, and industry financial trends;
- Provide a basis for recommending policy changes in Agency management or recommendations for legislative changes; and
- Determine Government risk and related guarantee fees for companies with outstanding Title XI ship financing guarantees.

Information Management

MARAD continued to expand its use of automation in managing and supporting its programs during FY 1982.

A major development was consolidation of all word processing and office automation activities in the Agency's Office of Information Resources Management (formerly Office of Management Information Services). The consolidation will result in a unified approach to the delivery of these services and equipment throughout the Agency.

Efforts to make trade data more accessible to program offices were expanded. The Agency is using the most recent automated data processing software and hardware technology to create a unified data base of both foreign and domestic waterborne trade information. This initiative will further increase its ability to respond to the numerous inquiries made by the Administration, the Congress, and the industry.

Substantial effort has been devoted to develping systems for reporting bilateral trade with selected countries.

To assist U.S.-flag operators in obtaining their fair share of cargo and to ensure that preference laws concerning Government-impelled cargo are carried out, numerous improvements were made to the information systems supporting these activities.

Personnel

MARAD employment declined from 1,329 to 1,232 in FY 1982.

The impact of the reduction-in-force which occurred in June 1982

was minimal due to attrition and the use of vacancies to absorb displaced employees. This was accomplished without grade reduction, whenever feasible.

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

One upward mobility position was established.

In FY 1982, total MARAD employee attendance at formal Agency-sponored training programs was approximately 1,500. Emphasis continued to be placed on in-house training. Forty-two courses were offered within the Agency's facilities. The use of nontraditional instruction methods, such as programmed texts and video and audio tapes, was increased.

Twelve MARAD employees received high honors in FY 1982. One Silver Medal, four Bronze Medals, two Equal Employment Opportunity Awards, and five Secretary's Awards for Excellence were approved. Performance awards were made to 102 Agency employees including 27 quality step increases and 75 special achievement awards.

The merit pay population decreased from approximately 240 to 160 covered employees. The reduction resulted from new definitions of management officials issued by the Federal Labor Relations Authority.

Thirty-three percent of the Agency's full-time permanent workforce is represented by labor unions and 84 percent of employees represented are covered by collective bargaining agreements. The six recognized bargaining units are located in field activities.

Safety Program

The Maritime Administration maintains a safety and health program intended to provide a safe and healthy workplace for all employees as required by the Occupational Safety and Health Act of 1970, as amended.

During FY 1982, the Agency implemented an "Action Plan for Control of Asbestos Exposure and Uses in MARAD Programs" and provided educational activities for all MARAD employees concerning the types and uses of asbestos, its dangers, health hazards, effects on individuals, and methods of controlling exposure.

Installations and Logistics

Real Property

At the end of FY 1982, the Maritime Administration's real property included National Defense Reserve Fleet sites at Suisun Bay, Calif.; Beaumont, Tex.; and James River, Va.; a warehouse at Kearney, N.J.; the U.S. Merchant Marine Academy at Kings Point, N.Y.; and the Wilmington, N.C., Maritime Facility.

Five radar training schools formerly operated by MARAD were transferred to non-Federal organizations. (See Chapter 7.)

Facilities for training maritime firefighters are operated at Earle, N.J., and Treasure Island, Calif., under agreements with the U.S. Navy, and by MARAD at New Orleans, La., and Toledo, Ohio. Regional offices are maintained in New York, N.Y., New Orleans, La., Cleveland, Ohio, and San Francisco, Calif. Market Development Offices are maintained in Long Beach, Calif., Des Plaines, Ill., Seattle, Wash., Houston, Tex., Atlanta, Ga., and the four regional headquarters.

The Agency also maintains the National Maritime Research Center at Kings Point, N.Y., and a Ship Management Office in Norfolk, Va.

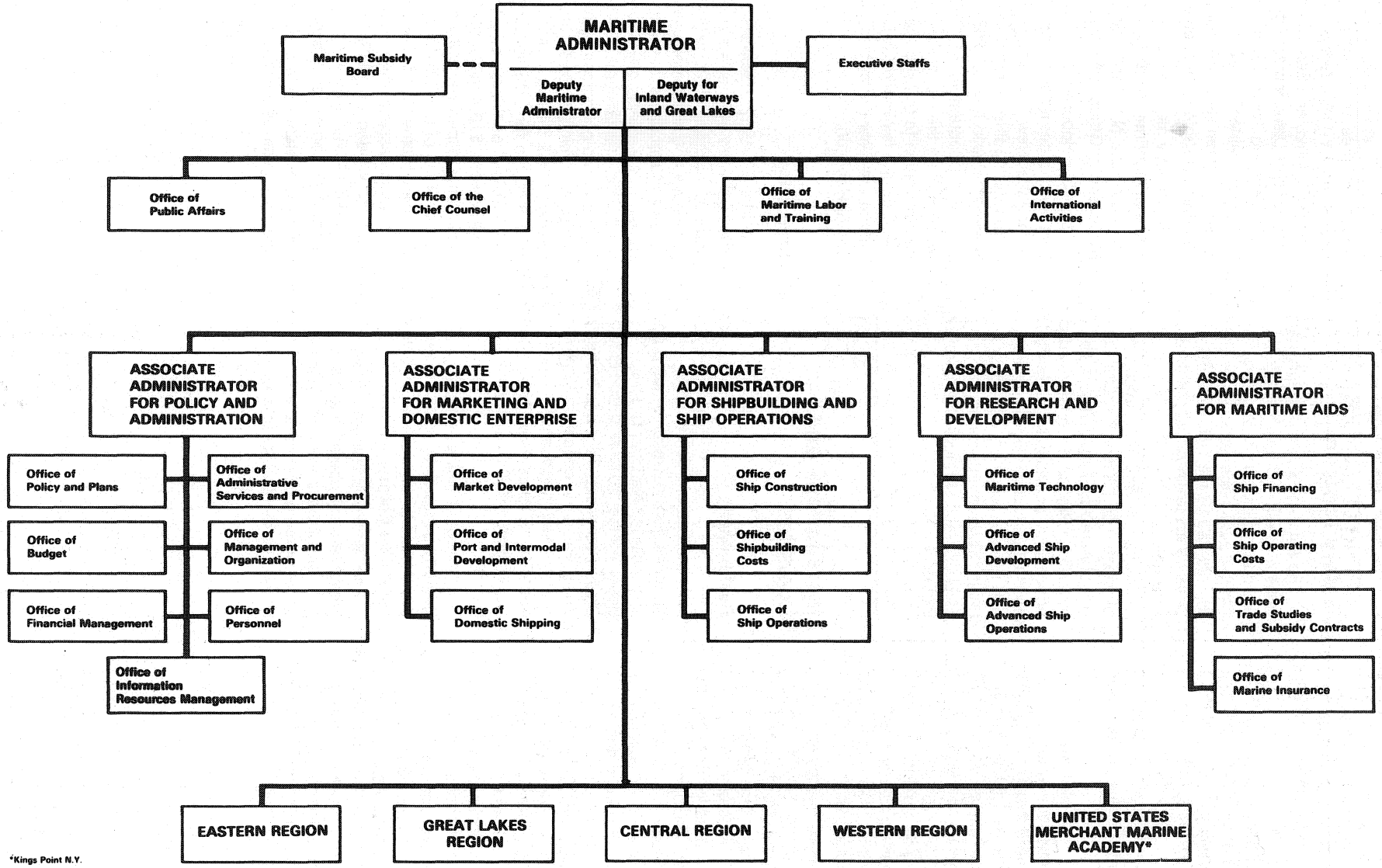
MARAD's Hoboken, N.J., terminal continued under lease to the Port Authority of New York and New Jersey during this reporting period. However, Public Law 97–268, enacted on September 17, 1982, would require the General Services Administration to transfer the terminal for the fair market value, without warranty of any kind, to the City of Hoboken.

Accounting

During FY 1982, MARAD's accounts were maintained on an accrual basis and in conformity with generally accepted accounting principles and standards, and with related requirements prescribed by the Comptroller General. The cost of the combined operations of the Maritime Administration for the year totaled $526.2 million. This included $502.8 million for ODS and CDS, $19.7 million for research and development, $18.4 million for administrative expenses, $16.4 million for operation of the U.S. Merchant Marine Academy, and $12.4 million for financial assistance to State maritime academies. MARAD received $43.5 million in other operating income, net of expenses.

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

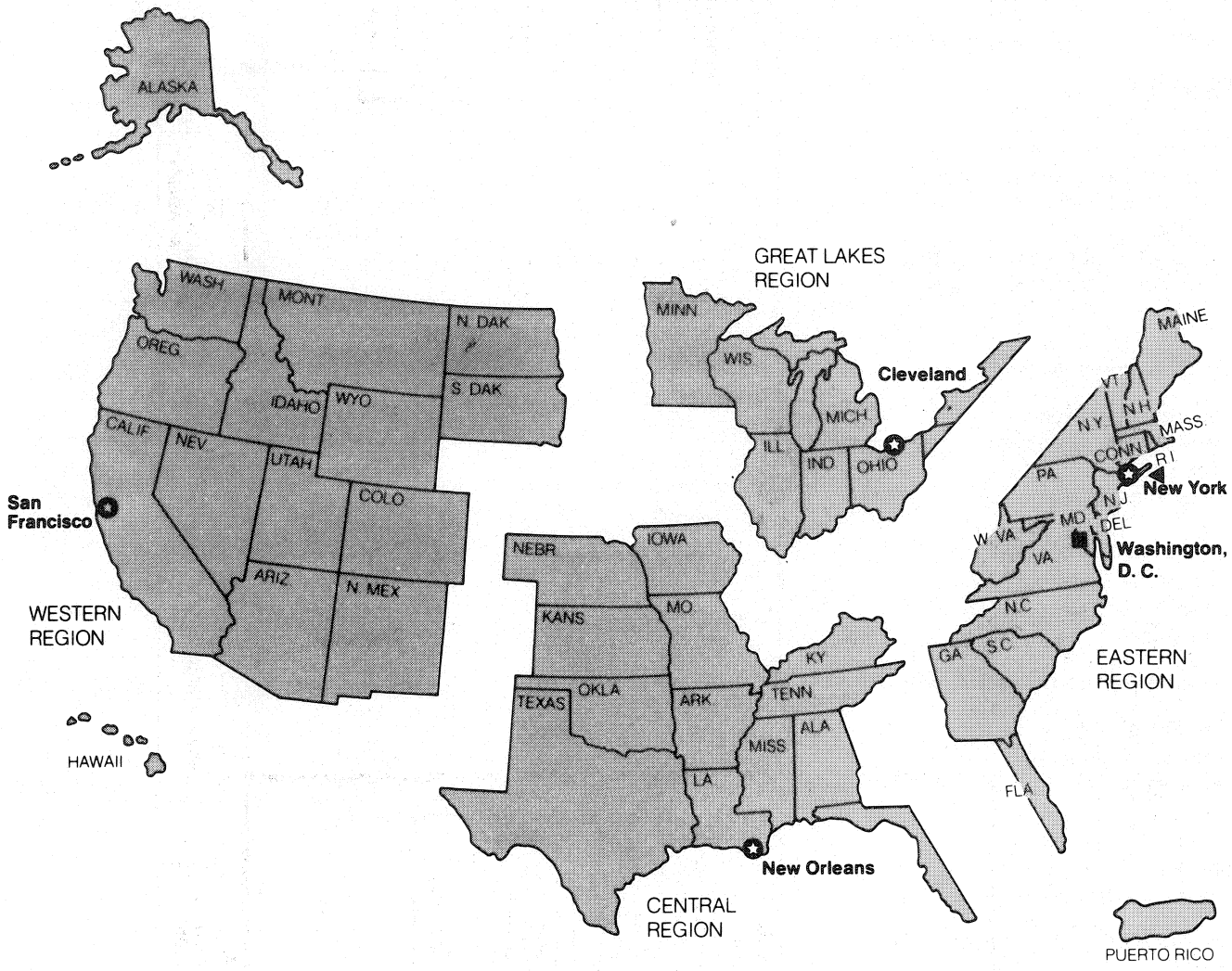
Maritime Administration
Organization Chart



*Kings Point N.Y.

Maritime Administration

Field Organization



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

FINANCIAL STATEMENTS

U.S. Department of Transportation—Maritime Administration

Exhibit 1. Statement of Financial Condition

September 30, 1981, and September 30, 1982

ASSETS	September 30 1982	September 30 1981
Selected Current Assets		
Funded Balances with Treasury:		
Budget Funds	$160,485,482	$399,016,355
Deposit Funds	705,520	283,283
Allocations from Other Agencies	—	—
Budget Clearing Accounts	—	—
	161,191,002	339,299,638
Federal Security Holdings	194,605,000	166,286,000
Accounts Receivable:		
Government Agencies	20,061,120	7,875,563
The Public	6,506,466	119,265
Allowances (–)	– 3,994,484	– 645,036
	22,573,102	7,349,792
Advances To:		
Government Agencies	—	—
The Public	111,830	83,983
Total Selected Current Assets	**$378,483,934**	**$513,019,413**
Loans Receivable:		
Repayment in Dollars	158,273,131	145,912,598
Allowances (–)	– 50,000,000	– 55,060,999
	108,273,131	90,851,599
Inventories:		
Raw Materials and Supplies	25,391,237	21,868,625
Real Property and Equipment:		
Land	6,400,488	6,382,879
Structures and Facilities	40,106,333	40,086,038
Equipment and Vessels	2,211,089,963	1,273,438,686
Leasehold Improvements	92,119	92,119
Allowances (–)	– 1,147,257,021	– 1,211,111,589
	1,110,431,882	108,888,133
Other Assets:		
Works-in-Process—Other	16,927,329	13,270,513
Material and Supplies	887,973	787,401
Non-Current Assets	15,782,733	5,744,806
Notes Receivable	27,478,838	26,357,213
Allowances (–)	—	– 121,102
	61,076,873	46,038,831
Total Assets	**$683,657,057**	**$780,666,601**

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

FINANCIAL STATEMENTS

U.S. Department of Transportation—Maritime Administration

LIABILITIES	September 30 1982	September 30 1981
Selected Current Liabilities (Note 2)		
Accounts Payable (Including Funded Accrued Liabilities):	$ 7,306,659	$ 2,287,036
Government Agencies	119,232,030	170,713,965
Total	126,538,689	173,001,001
Advances From:	—	—
Government Agencies	22,187,196	25,551,573
Total	22,187,196	25,551,573
Total Selected Current Liabilities	**$148,725,885**	**$198,552,574**
Deposit Fund Liabilities	705,520	283,283
Unfunded Liabilities:		
Accrued Annual Leave	2,949,157	2,978,513
Other Liabilities:		
Vessel Trade-In Allowance and other accrued liabilities	63,420,949	2,613,739
Total Liabilities	**$215,801,511**	**$204,428,109**
Government Equity		
Unexpended Budget Authority:		
Unobligated	219,282,803	207,767,833
Undelivered Orders	107,084,275	265,699,062
	326,636,078	473,466,895
Unfinanced Budget Authority (–):		
Unfilled Customer Orders	– 7,192,280	– 10,062,376
Contract Authority	– 90,122,269	– 149,220,963
	– 97,314,549	– 159,283,339
Invested Capital	238,803,017	262,054,936
Total Government Equity	**$467,855,546**	**$576,238,492**
Total Liabilities and Government Equity	**$683,657,057**	**$780,666,601**

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, 1981, and September 30, 1982	Years Ended September 30	
	1982	**1981**
OPERATIONS OF THE MARITIME ADMINISTRATION:		
Net Costs of Operating Activities		
Reserve Fleet Programs:		
Depreciation on Vessels	$ 368,038	$ 4,595,461
Maintenance and Preservation	14,894,010	6,955,375
	15,262,048	11,550,836
Maritime Training Program	16,431,505	15,176,089
Maintenance of Shipyard and Warehouse	9,759	62,597
Direct Subsidies and National Defense Costs:		
Operating-Differential Subsidies	358,049,306	333,280,790
Construction-Differential Subsidies	144,748,676	103,045,492
Costs of National Defense Features	3,368,064	1,515,550
	506,166,046	437,841,832
Administrative	18,388,907	26,262,528
Research and Development	19,720,232	20,354,364
Financial Assistance to State Marine Schools	12,359,400	7,288,655
	50,468,539	53,905,547
Other Costs (Net of Income):		
Income on Sale of Obsolete Vessels	−2,114,150	−3,643,949
Loss on Sale of Other Assets	1,039,774	−6,556
Inventory and Property Adjustments	−37,822	869,681
Interest Income	—	−3,022
Miscellaneous (Net)	−2,598,476	6,914,388
	−3,710,674	4,130,542
Net Cost of Maritime Administration Operations	**$584,627,223**	**$522,667,443**
OPERATIONS OF REVOLVING FUNDS (− Income):		
Vessel Operations Revolving Fund	$ 5,310,346	$ −15,310,346
War-Risk Revolving Fund	−913,432	700,514
Federal Ship Financing Fund, Revolving Fund	−62,795,689	−50,991,711
Net Cost of Combined Operations	**$526,228,448**	**$457,202,221**

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

Notes to Financial Statements—September 30, 1982, and September 30, 1981

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

2. MARAD was contingently liable under agreements insuring mortgages and construction loans payable to lending institutions totaling $7,097,616,308 on September 30, 1982, and $6,567,719,056 on September 30, 1981. U.S. Government Securities and cash of $182,438,797 on September 30, 1982, and $261,412,967 on September 30, 1981, were held in escrow by the Government in connection with insurance of loans and mortgages which were financed by the sale of bonds to the general public. There were no conditional liabilities for prelaunching War-Risk Builder's Risk Insurance on September 30, 1982.

3. On September 30, 1982, the U.S. Treasury held in safekeeping for MARAD $180,000 of U.S. Government securities which had been accepted from vessels, charterers, subsidized operators, and other contractors as collateral for their performance under contracts. On September 30, 1981, the amount was $180,000.

Appendix I: MARITIME SUBSIDY OUTLAYS—1936–1982

Fiscal Year	CDS	Reconstruction Subsidy	Total	ODS	Total ODS & CDS
1936–1955	$ 248,320,942[1]	$ 3,286,888	$ 251,607,830	$ 341,109,987	$ 592,717,817
1956–1960	129,806,005	34,881,409	164,687,414	644,115,146	808,802,560
1961	100,145,654	1,215,432	101,361,086	150,142,575	251,503,661
1962	134,552,647	4,160,591	138,713,238	181,918,756	320,631,994
1963	89,235,895	4,181,314	93,417,209	220,676,685	314,093,894
1964	76,608,323	1,665,087	78,273,410	203,036,844	281,310,254
1965	86,096,872	38,138	86,135,010	213,334,409	299,469,419
1966	69,446,510	2,571,566	72,018,076	186,628,357	258,646,433
1967	80,155,452	932,114	81,087,566	175,631,860	256,719,426
1968	95,989,586	96,707	96,086,293	200,129,670	296,215,963
1969	93,952,849	57,329	94,010,178	194,702,569	288,712,747
1970	73,528,904	21,723,343	95,252,247	205,731,711	300,983,958
1971	107,637,353	27,450,968	135,088,321	268,021,097	403,109,418
1972	111,950,403	29,748,076	141,698,479	235,666,830	377,365,310
1973	168,183,937	17,384,604	185,568,541	226,710,926	412,279,467
1974	185,060,501	13,844,951	198,905,452	257,919,080	456,824,532
1975	237,895,092	1,900,571	239,795,663	243,152,340	482,948,003
1976[2]	233,826,424	9,886,024	243,712,448	386,433,994	630,146,442
1977	203,479,571	15,052,072	218,531,643	343,875,521	562,407,164
1978	148,690,842	7,318,705	156,009,547	303,193,575	459,203,122
1979	198,518,437	2,258,492	200,776,929	300,521,683	501,298,612
1980	262,727,122	2,352,744	265,079,866	341,368,236	606,448,102
1981	196,446,214	11,666,978	208,113,192	334,853,670	542,966,862
1982	140,774,519	43,710,698	184,485,217	400,689,713	585,174,930
Total	**$3,473,030,054**	**$257,384,801**	**$3,730,414,855**	**$6,559,565,235**	**$10,289,980,090**

[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, 1981[1] and 1980[2] (Amounts Stated in Thousands of Dollars)

ASSETS	1981	1980
Current Assets:		
Cash	$ 21,053	$ 19,406
Marketable Securities	62,967	92,862
Accounts Receivable	424,959	358,876
Other Current Assets	111,015	59,230
Total Current Assets	$ 619,994	$ 530,374
Special Funds and Deposits	257,485	209,528
Investments	37,981	30,228
Property and Equipment Less Depreciation:		
Vessels	1,504,722	1,111,062
Other Property and Equipment	502,487	364,533
Other Assets	91,298	160,517
TOTAL ASSETS	**$3,013,967**	**$2,406,242**
LIABILITIES AND STOCKHOLDERS' EQUITY		
Liabilities:		
Current Liabilities:		
Accounts and Notes Payable	$ 292,367	$ 258,745
Current Portion of Long-Term Debt	112,240	36,625
Other Current Liabilities	271,646	185,102
Total Current Liabilities	$ 676,253	$ 480,472
Voyages in Progress (Net)	77,322	93,497
Long-Term Debt	1,236,032	967,913
Other Liabilities	277,626	173,302
Total Liabilities	$2,267,233	$1,715,184
Stockholders' Equity:		
Capital Stock	98,076	85,071
Paid-in Capital	198,848	169,825
Retained Earnings	449,810	436,162
Total Stockholders' Equity	$ 746,734	$ 691,058
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	**$3,013,967**	**$2,406,242**

[1] Data from Forms MA-172 filed by 20 subsidized companies.

[2] Data from Forms MA-172 filed by 18 subsidized companies.

Statement B—Combined Condensed Income and Retained Earnings for the Years Ending December 31, 1981, and 1980 (Amounts Stated in Thousands of Dollars)

	1981	1980
Shipping Operations:		
Revenue:		
Terminated Voyages	$3,133,409	$2,340,607
Other Shipping Operations	2,009	12,503
Total Revenue	$3,135,418	$2,353,110
Expenses:		
Vessel Expense	$1,471,210	$1,121,003
Operating-Differential Subsidy (ODS)	(352,498)	(334,907)
Voyage Expense	1,341,804	1,084,204
Total Vessel/Voyage Expense (Net of ODS)	$2,460,516	$1,870,300
Overhead	$ 348,875	$ 233,078
Depreciation and Amortization on Shipping Property and Equipment	128,498	90,161
Other Expenses	17,885	10,968
Total Expenses	$2,955,774	$2,204,507
Shipping Operations Gross Profit	$ 179,644	$ 148,603
Other Income	64,740	51,981
Other Deductions	(154,415)	(92,355)
Shipping Operations Net Profit	$ 89,969	$ 108,229
Non-Shipping Operations Net Profit (Loss)	(1,340)	(1,013)
Ordinary Income Before Income Taxes	$ 88,629	$ 107,216
Provision for Income Taxes	(18,744)	(22,586)
Ordinary Income After Income Taxes	$ 69,885	$ 84,630
Extraordinary Items Net of Income Taxes—Income (Expense)	1,344	34,612
NET INCOME	**$ 71,229**	**$ 119,242**
Retained Earnings Beginning of Year[1]	$ 452,218	$ 374,781
Changes:		
Dividends	(64,514)	(53,300)
Other	(9,123)	(4,561)
RETAINED EARNINGS END OF YEAR[1]	**$ 449,810**	**$ 436,162**

[1] Difference between 1980 Retained Earnings ending balance and 1981 Retained Earnings beginning balance is due to change in participating companies.

Project	Task	Vendor	Contract Number	Amount
	Advanced Ship Development			
Shipbuilding Research:				
Improved Outfit and Production Aids*	To conduct four major ship construction projects to assist the U.S. shipbuilding industry in reducing the difference in productivity between U.S. and Japanese shipbuilding.	Todd Pacific Shipyard Los Angeles, Calif.	0–01107	$500,000
Improved Surface Preparation and Coating*	To develop improved methods and reduce the cost of preparation and coating of steel during ship construction.	Avondale Shipyards, Inc. New Orleans, La.	1–10011	254,000
Shipbuilding Standards Research*	To develop a U.S. shipbuilding standards program for hull construction, heating/ventilating and air conditioning, outfit design, piping materials standards, design and other major facets relating to shipbuilding design, construction and material processing.	Bath Iron Works Bath, Maine	0–01106	503,699
Design/Production Integration Program*	To stimulate the integration of design and production within the shipbuilding industry.	Newport News Shipbuilding Newport News, Va.	2–10018	400,000
Shipbuilding Education Program*	To develop and maintain educational programs covering the latest technology on ship production and planning.	University of Michigan Ann Arbor, Mich.	2–20022	300,000
Process Lanes Feasibility Study*	To determine the economic and technical feasibility of implementing process lanes into U.S. shipyard production plans.	Avondale Shipyards, Inc. New Orleans, La.	2–20024	216,200
Industrial Engineering Program*	To employ improved production methods and engineered labor standards in functional production areas to aid planning, scheduling, labor control and other management areas in U.S. shipbuilding.	Bath Iron Works Bath, Maine	0–01105	883,503
Welding Research*	To conduct research to improve welding productivity and the quality of welding inspection at U.S. shipyards.	Newport News Shipbuilding Newport News, Va.	0–01041	665,000
Direct Pulverized Coal Firing for Marine Boilers*	To determine the technical and economic feasibility of using direct pulverized coal fired propulsion systems as a means of ship propulsion which specifically apply to Great Lakes bulk carriers.	Stock Equipment Co. Cleveland, Ohio	2–20026	43,350

* Cost Shared

Project	Task	Vendor	Contract Number	Amount
Coal-Fired Propulsion System Dynamics	To expand a computer simulation model to simulate ship propulsion transient responses, fuel switching and combined firing modes, and oil firing.	General Dynamics Quincy, Mass.	1–10030	$ 25,000
Design and Development of Coal-Fired Steam Turbine Propulsion System for Colliers	To develop contract plans for three steam turbine propulsion systems including performance specifications, system diagrammatics, and machinery/equipment lists.	M. Rosenblatt & Sons New York, N.Y.	2–20014	462,827
Shipboard Fuel Conditioning and Treatment	To develop guidelines for selection, application and installation of shipboard fuel conditioning and treatment systems.	Seaworthy Engine Systems Inc. Essex, Conn.	2–20007	77,799
Automation and Control Requirements for Coal-Fired Steam Propulsion	To conduct a technical examination and analysis for development of requirements for automation and controls of equipment and components for coal-fired steam turbine propulsion systems.	Engineering Computer Optecnomics, Inc. Annapolis, Md.	2–20006	77,760
	Advanced Ship Operations			
Fleet Management:				
Vessel/Shoreside System for Preventive Maintenance Machinery History	To design and implement a system for preventive maintenance and machinery history.	Pacific-Gulf Marine, Inc. New Orleans, La.	2–20001	153,291
Advanced Communication Technology	To conduct a test and demonstration system for computer-to-computer interchange of cargo data between a U.S.-flag ship operator and the Department of Defense.	Council of American Flag Ship Operators Washington, D.C.	MAH–11001	99,366
Intermodal Routing and Tracking System*	To develop an interactive computer-based system to assist U.S.-flag carriers in determining the most cost-effective and service effective routes for the movement of intermodal marine container shipments.	Sea-Land Industries, Inc. Elizabeth, N.J.	X–21001	148,313
Maritime Strategic Planning System*	To implement a computer-based system for monitoring existing trades and forecasting potential new trades and analyzing financial implications of participating in these trades.	Marine Transport Lines, Inc. New York, N.Y.	X–21002	160,449
Freight Decision Matrix*	To develop a computer-based system of cost reporting, financial analysis, and decision making matrices to enable U.S. liner shipping companies to improve control and increase profitability of their fleets.	Farrell Lines, Inc. New York, N.Y.	X–21003	153,032

* Cost Shared

Project	Task	Vendor	Contract Number	Amount
Operational Planning Model*	To design and develop a predictive model to forecast commodity movements to determine voyage profitability and to enhance equipment utilization and improve company performance.	Puerto Rico Maritime Authority San Juan, Puerto Rico	2–20010	$84,776
N.S. SAVANNAH	To terminate all support services for the transfer of the vessel to Patriots Point Development Authority effective October 1, 1981.	Charleston Army Depot North Charleston, S.C.	400–69005	43,004
Ship Performance and Safety:				
Sonar Dome Rubber Window*	To develop application methods to evaluate the nondestructive evaluation technique to establish a field-oriented system to identify the extent of material degradation and deformation of sonar window material.	Daedalean Associates, Inc. Woodbine, Md.	0–01065	87,694
E.P.I.R.B. Buoy	To purchase one spare Emergency Position Indicating Radio Beacon (E.P.I.R.B.).	Mitre Metrek Corp. McLean, Va.	8–3108	31,571
Automated Vessel Personnel System	To design and develop an automated system for storing and monitoring a data bank of merchant seamen available to crew U.S. merchant vessels.	PTW Systems, Inc. Vienna, Va.	2–20043	46,000
Copper-Nickel Hull Sheathing	To develop copper-nickel sheathing for ship underwater surfaces to extend drydocking intervals and reduce fuel consumption.	Copper Development Association, Inc. Birmingham, Mich.	1–10074	111,000
	Maritime Technology			
University Research:				
Implications of World Coal Demands on U.S. Port Planning	To expand the Port Expansion System model to include the Gulf and Pacific Coast ports to assess and evaluate potential patterns of export coal movements in the U.S.	Boston University Boston, Mass.	2–20032	50,180
Measurement of Hydrodynamic Coefficients from Ship Trials During Regular Operations	To determine the minimum number of parameters that need be measured during maneuvers of a ship to successfully identify the hydrodynamic coefficients in the maneuvering simulation model.	Massachusetts Institute of Technology Cambridge, Mass.	2–20016	49,989

* Cost Shared

Project	Task	Vendor	Contract Number	Amount
Calculation of Hydrodynamic Side Forces and Yaw Movements of Merchant Ships	To develop equations to accurately predict all the hydrodynamic force and movement components of merchant ships as functions of vessel geometry and motion variables.	Stevens Institute of Technology Hoboken, N.J.	2-20034	$47,160
Development of Accuracy Control Variation Merging Equations	To develop a set of variation merging equations for a specific vessel construction project with application for any shipyard use and for any design.	University of Washington Seattle, Wash.	2-20035	50,695
Measurement Analysis and Prediction of Hull and Propeller Performance	To develop improved technology to allow greater rational determination of optimum hull and propellor maintenance.	Farrell Lines, Inc. New York, N.Y.	2-20015	137,667
Application of IFD-NDE Evaluation Techniques for LNG Tanks	To refine and employ the internal friction damping (IFD) technique for detecting incipient flaws in pressure vessels and employing the technique as an early warning system of impending pressure vessel leaks.	Daedalean Associates Inc. Woodbine, Md.	0-01065	30,140
Cargo Handling:				
Technology Advances In Cargo Handling	To conduct an analysis and evaluation of automatic identification systems for cargo and equipment and to assess the method of reverse flow refrigeration for ocean shipping of perishable commodities.	Advanced Technology, Inc. Reston, Va.	0-01049	19,474
Modular Suiting of Containerships	To provide technical assistance in the design, development, test and evaluation of automated material handling systems applicable to support waterborne operations employing containerships in a supply/resupply role.	M. Rosenblatt, Inc. New York, N.Y.	0-01090	173,278
Sea Shed, Phase II, Test and Evaluation*	To construct and perform American Bureau of Shipping testing of four prototype Sea Sheds.	Information Spectrum, Inc. Cherry Hill, N.J.	0-01091	867,670
Sea Shed Development	To design a 35-foot Sea Shed and a prototype crane for use on board Sea Shed equipped vessels and assist in integrating Sea Sheds in the Navy's Strategic or Sealift Program.	Information Spectrum, Inc. Cherry Hill, N.J.	0-01091	735,401
Wide-Bodied/Shallow Draft Vessel, Phase II	To determine the economic viability of self-unloading shallow-draft vessels as compared to conventional vessels and their potential use as U.S.-flag bulk carriers for employment in the U.S. coal and grain trade to Western Europe and East Asia.	COR, Inc. Falls Church, Va.	0-01068	21,100

* Cost Shared

Project	Task	Vendor	Contract Number	Amount
Studies on Liquid Sloshing	To design, develop and publish data to improve the design synthesis of liquid cargo tanks for LNG and large oil tankers.	Texas A&M University College Station, Tex.	2-20036	$49,855
Structures:				
Ship Structures	MARAD's share of the Ship Structures Committee for Fiscal Year 1982.	U.S. Coast Guard Washington, D.C.	400-29001	35,000
Arctic Technology:				
Operational Assessment of Commercial Ice-Breaking Tankers*	To collect and analyze environmental data, ship performance, and trafficability data on the U.S.C.G. POLAR STAR.	Arctec, Inc. Columbia, Md.	1-10023	360,475
Marine Science:				
Great Lakes Damage Penetration	To conduct literature search of Great Lakes accident data.	Clarke, Inc. Arlington, Va.	P.O. 2-2265	9,425
Hydrodynamics:				
Tandem Propeller	To examine tandem propellers as a means of increasing the power which can be absorbed in a single shaft.	David W. Taylor Naval Ship Research and Development Center Bethesda, Md.	400-89012	63,900
Instrument Package for Measurement of Ships Dynamic Performance	To conduct sea trials to test, collect, and evaluate ships dynamic performance data.	Systems Control Technology, Inc. Palo Alto, Calif.	0-01092	67,000
Measurement of Ship Dynamic and Control Parameters	To design and assemble an instrumentation package and software system for full-scale tests to determine maneuvering coefficients.	Systems Control Technology, Inc. Palo Alto, Calif.	0-01092	80,528
Sources of Hull Vibration	To design a mathematical model for predicting noncavitating and cavitating propeller forces.	Massachusetts Institute of Technology Cambridge, Mass.	2-20037	60,557
Navigation/Communication:				
Radio Technical Committee	MARAD's share of the Radio Technical Committee support for Fiscal Year 1982.	Federal Communications Commission Washington, D.C.	400-29002	21,200
Emergency Position Indicating Radio Beacon	To develop, test and evaluate a spread spectrum technique for relay of distress infromation transmitted from a float-free buoy relayed through MARISAT/INMARSAT.	Mitre Corp. Metrek Division McLean, Va.	8-3108	306,668
Coverings for Steel Covered Propellers	To develop test data on wavemaking systems and related data for large diameter propellers.	Daedalean Associates, Inc. Woodbine, Md.	7-38048	616,777

* Cost Shared

Appendix III: Continued

Project	Task	Vendor	Contract Number	Amount
Advanced Ship Systems:				
Feasibility of VLCC Conversions to Restricted Draft Colliers	To examine the technical and economic feasibility of the use of reflagged deep draft vessels for use in the U.S. steam coal trade.	E.J. Bentz Associates Springfield, Va.	2-20045	$99,883
Marine Board	MARAD's share in support of the Core Program aimed at issues of current and national interest in the areas of safety, economics, and data/information.	National Academy of Science Washington, D.C.	2-20025	84,000
MARATECH	To assemble, produce and distribute 12 bimonthly issues of a research and development technology transfer journal.	Capital Systems Group, Inc. Kensington, Md.	2-20017	29,626
National Salvage Posture	To assess the national capability and posture for rescue salvage of merchant ships and to develop recommendations for improving the capability of the commerical salvage industry.	Office of Naval Research Arlington, Va.	400-29004	30,000
CAORF:				
Management and Operations*	To provide management and operations expertise to the National Maritime Research Center's Computer-Aided Operations Research Facility (CAORF), for the period Oct. 1, 1981 through Sept. 30, 1982.	Grumman Data Systems Bethpage, N.Y.	1-10041	1,021,372
Maintenance and Engineering Support*	To provide maintenance and technical engineering support to CAORF, for the period Oct. 1, 1981 through July 30, 1982.	Sperry Management Systems Great Neck, N.Y.	1-10033	1,363,689
Maintenance and Engineering	To provide maintenance and technical engineering support to CAORF, for the period Aug. 1, 1982 through Sept. 30, 1982.	Sperry Management Systems Great Neck, N.Y.	2-20003	232,371
Technical Research Experimenter	To provide technical maritime research and management support to CAORF, for the period Oct. 1, 1981 through June 30, 1982.	Ship Analytics, Inc. Centerport, N.Y.	1-10042	1,025,000

* Cost Shared

Project	Task	Vendor	Contract Number	Amount
	Marketing and Domestic Enterprise			
Port and Intermodal Development:				
Maryland Port System Study	To develop and prepare the Maryland State Transportation Plan that will aid in the identification of future transportation policies and goals over a 20-year period.	Maryland Department of Transportation Baltimore, Md.	2–20042	$63,000
Port Information System	To provide the design and methodology of a Port Planning Information System to evaluate general data development, trade data and vessel information.	Transportation System Center Cambridge, Mass.	400–29008	100,000
Analysis of Coast Guard User Charges	To modify MARAD's trade and fleet data base to assist in assessing the impact of U.S. Coast Guard proposed user charges.	Temple, Barker and Sloane Lexington, Mass.	P.O. 2–2292	10,000
Tanker Berthing Evaluation	To conduct full scale tests and instrumentation requirements for full scale tests to validate the tug effect modules at the National Maritime Research Center.	Military Sealift Command Washington, D.C.	400–29000	70,000
Tanker Berthing Evaluation	To obtain the services of an "Empire State Class" tugboat to assist in full scale tests.	Exxon Company, U.S.A. Linden, N.J.	2–20009	18,000
Market Analysis:				
Market Assessment of Bulk/Containerships	To determine the market feasibility of U.S.-flag bulk/containerships, by performing an assessment of the supply and demand factors for combination service.	Temple, Barker and Sloane Lexington, Mass.	2–20028	166,952

Appendix IV: STUDIES AND REPORTS RELEASED IN FY 1982

The following major* studies or reports were released by the Maritime Administration during fiscal year 1982.

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

MARAD 1981 (The Annual Report of the Maritime Administration for Fiscal Year 1981), 78pp, PB83-159434, $10.50, [NTIS]

Alaska Natural Gas Development: An Economic Assessment of Marine Systems, prepared by ICF, Inc., September 1982 [NTIS]

Volume 1	Final Report	PB82-260399	$10.00
Volume 2	Appendix	PB82-260407	$19.00

An Assessment of Performance and Condition Monitoring Requirements of Foreign Marine Diesel Propulsion Systems, prepared by Seaworthy Engine Systems, Inc., 1981, PB81-198012, $25.00 [NTIS]

Domestic Waterborne Trade of the United States, 1975—1979, prepared by the Maritime Administration, Office of Domestic Shipping, February 1982, 224pp, $8.50 [GPO]

Estimated Maintenance and Repair Requirements for Coal-Fired Propulsion Systems, prepared by Santa Fe Corp., June 1982, PB82-230376, $12.00 [NTIS]

Formulation of Captital Budgeting Techniques in Port Development, prepared by Washington University of St. Louis, 1982, PB82-174798, $12.00 [NTIS]

Implementation of the U.N. Code of Conduct for Liner Conferences: A Study of U.S. Options, prepared by Manalytics, Inc., and TRG Washington Group, December 1981 [NTIS]

Volume 1	Executive Summary	PB82-167602	$ 6.00
Volume 2	Development and Issues	PB82-167610	$ 9.00
Volume 3	Alternatives Environments and U.S. Options	PB82-167628	$12.00
Volume 4	Appendices	PB82-167636	$16.50
Set		PB82-167594	$34.50

Implications of Power Plant Coal Conversions on the Ports of New England, prepared by Boston University's Center for Energy and Environmental Studies, October 1981 [NTIS]

Volume 1	Report	PB82-136409	$10.00
Volume 2	Appendices	PB82-136417	$19.00

Marine Condenser Operations, Maintenance and Performance, prepared by The Baham Corp., January 1982 [NTIS]

Volume 1	Final Report	PB82-168154	$10.00
Volume 2	Handbook	PB82-168162	$16.00

Marine Terminal Automated Management System for Public Container Terminals—Phase II: System Demonstration, prepared by ARINC Research, 1982, PB82-150335, $12.00 [NTIS]

The Marine Transport of Coal and Coal Products from the Beluga Coal Fields of Alaska, prepared by Hydronautics, Inc., 1982, PB82-127085, $22.50 [NTIS]

Pneumatic Dense-Phase Shipboard Coal and Ash Conveying, Storage and Bunkering Systems for Coal-Fired Ships, prepared by Macawber, Inc., May 1982, PB82-236035, $37.50 [NTIS]

Residual Fuel Outlook, prepared by Mitnick and Associates, Inc., March 1982, PB82-218587, $16.50 [NTIS]

A Study of Multimode Express Shipping, prepared by IMA Resources, Inc., January 1982,

Final Report	PB82-179508	$15.00
Appendices	PB82-180159	$31.50

A Shipper's Guide to Stowage of Cargo in Marine Containers, prepared by the Maritime Administration, Office of Research and Development, April 1983, $4.75 [GPO]

Usage Pricing for Public Marine Terminal Facilities, prepared by the Maritime Administration's Office of Port and Intermodal Development and the American Association of Port Authorities, December 1981

Volume 1	Executive Report	PB82-180894	$ 7.00
Volume 2	Report	PB82-180886	$11.50
Volume 3	Appendices	PB82-180902	$10.00

U.S. Exports & Imports Transshipped Via Canadian Ports, prepared by the Maritime Administration, Office of Market Development, April 1982, [MARAD]

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

*U.S. GOVERNMENT PRINTING OFFICE : 1984 0-421-428/107