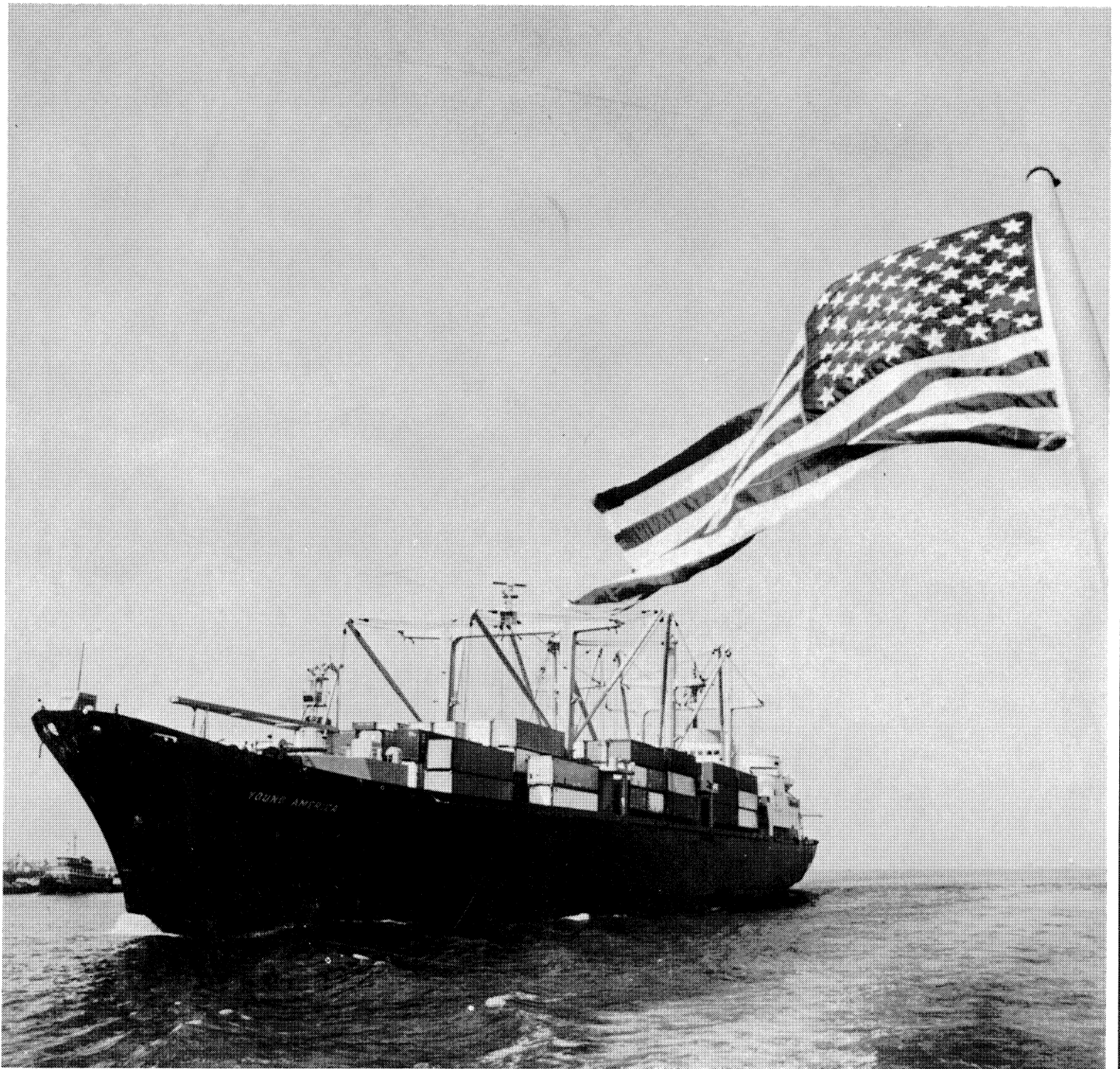


# MARAD 1975

U.S. DEPARTMENT OF COMMERCE

Maritime Administration



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# MARAD 1975

The Annual Report of the  
Maritime Administration  
for Fiscal Year 1975



June 1976

**U.S. DEPARTMENT OF COMMERCE**  
Elliot L. Richardson, Secretary

**MARITIME ADMINISTRATION**  
Robert J. Blackwell,  
Assistant Secretary  
for Maritime Affairs

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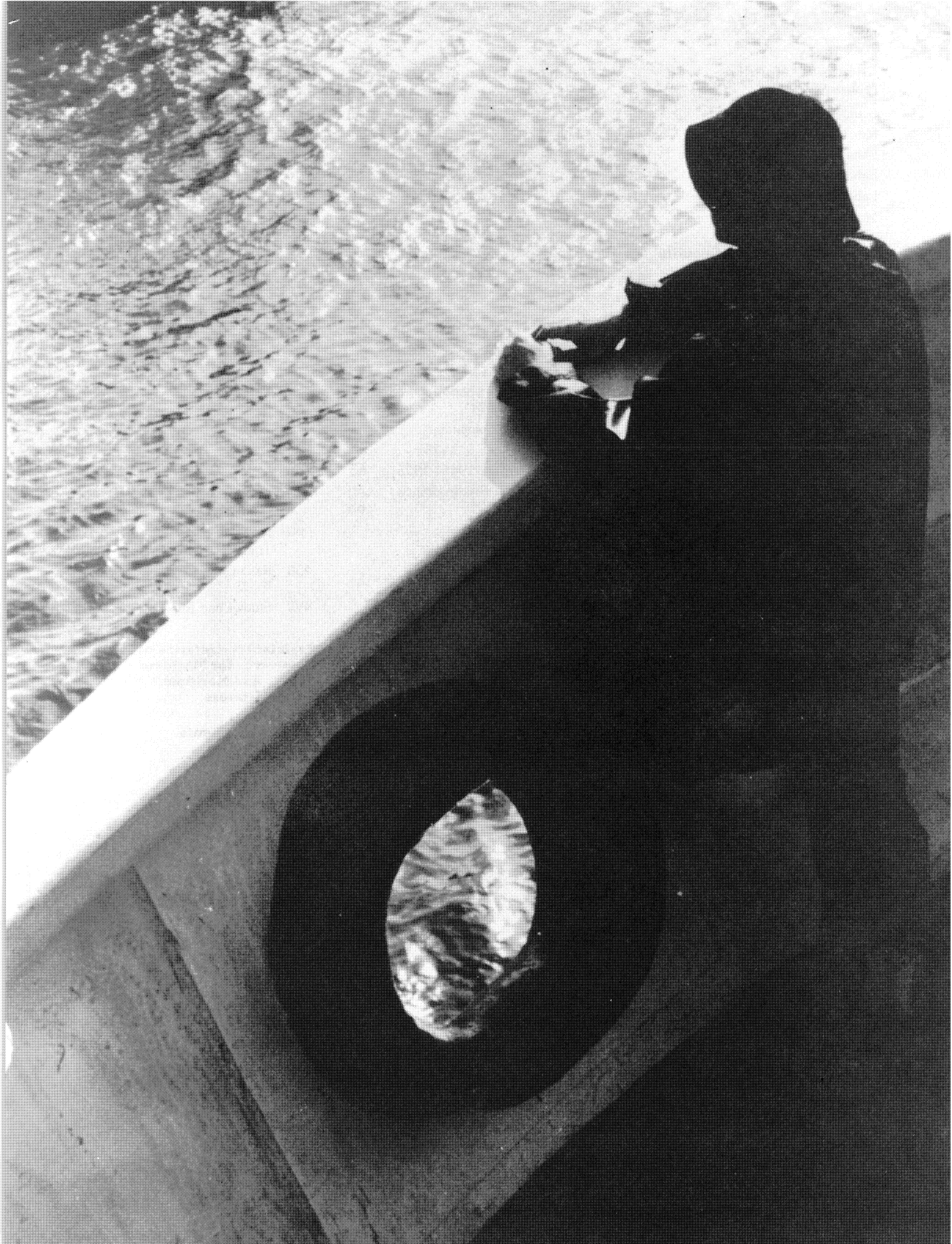


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**THE SECRETARY OF COMMERCE**  
Washington, D.C. 20230

The President  
President of the Senate  
Speaker of the House of Representatives

Sirs:

It is my honor to submit the annual report of the Maritime Administration, U.S. Department of Commerce. The report covers the Agency's activities during fiscal year 1975 to promote and strengthen the American merchant marine.

Although the Agency's programs are amply described in the report, I call your specific attention to the following:

\* Shipbuilding continued at an unprecedented peacetime level with a backlog of more than \$4.4 billion in commercial contracts on the books of American shipyards.

\* Subsidized ship operators reported a net income of \$120.9 million for 1974 as compared with a net loss of \$9.7 million the previous year.

\* The U.S./U.S.S.R. Maritime Agreement continued to stimulate American exports and provide employment for American merchant ships.

\* MarAd's research program continued to develop innovative equipment, systems, and technology to improve the efficiency of the shipping and shipbuilding industries.

\* The importance of the Great Lakes maritime community was highlighted by MarAd's opening of a Great Lakes Region and the award of ship operating subsidy to provide American flag service linking Great Lakes and overseas ports.

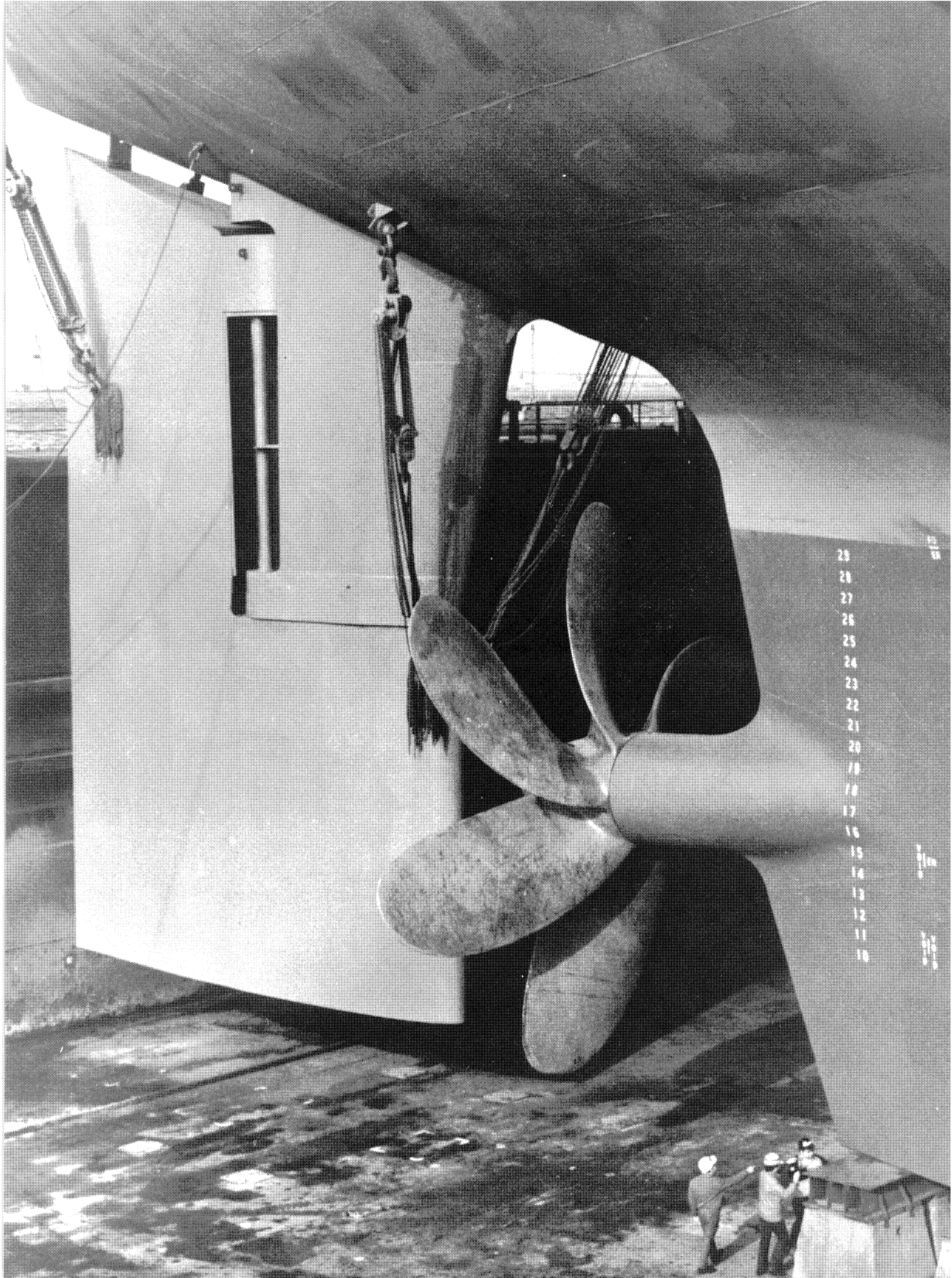
The report reveals that during the year the maritime industry made substantial gains in improving the productivity and competitiveness of the American merchant marine.

Respectfully,

A handwritten signature in dark ink, appearing to read "Elliot L. Richardson".

Elliot L. Richardson





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# INTRODUCTION

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**BY ROBERT J. BLACKWELL**

**ASSISTANT SECRETARY  
FOR MARITIME AFFAIRS**

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The Nation's economic well-being and national security are closely related to U.S. strength at sea. The Maritime Administration administers programs designed to aid the development, operation, and promotion of a strong, modern American merchant marine, an essential component of U.S. seapower.

The innovative programs stemming from the Merchant Marine Act of 1970 have provided a solid base for the growth and modernization of the U.S. maritime industry. The stability and forward-looking attitude that the Act fostered has enabled the maritime industry to better withstand the fluctuations that so recently beset all sectors of the U.S. economy.

Although much still remains to be accomplished, the U.S. shipping and shipbuilding industries have made considerable progress in modernizing their facilities and equipment and improving their productivity since enactment of the 1970 legislation. Highlights of some of the maritime industry's major achievements during fiscal year 1975 follow.

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## Shipbuilding

During fiscal year 1975 the Maritime Administration awarded subsidized contracts for the construction of three new 56,000 deadweight ton (dwt.) tankers. In anticipation of an expected increase in the refining capabilities of oil exporting nations, these product tankers will be able to carry such refined petroleum products as naphtha, gasoline, and diesel fuel as well as crude oil. Of the total contract price of \$130.6 million, the Government will pay \$45.7 million in construction-differential subsidy (CDS) and \$300,000 for national defense features on the three product carriers. MarAd also awarded subsidy for reconstruction or conversion work worth \$63.5 million on eight existing ships. These contracts brought the total value of subsidized shipbuilding activity under the 1970 Act to more than \$3 billion, covering the construction or reconstruction of 82 merchant ships.

American shipyards delivered 12 subsidized and 13 unsubsidized new merchant ships aggregating 1.2 million dwt. during the past year. Ten of the 12 subsidized vessels had been ordered under the Merchant Marine Act of 1970, bringing to 19 the number of ships contracted for and delivered under that law. The 25 vessels delivered to the U.S. fleet during fiscal year 1975 included six LASH vessels, two ore carriers, one Roll-on/Roll-off vanship, one tug-barge unit, and 15 tankers.

U.S. shipyards held orders for the construction of 83 merchant ships aggregating more than 8 million dwt. as of June 30, 1975. In addition, five vessels were undergoing reconstruction or conversion. Total value of the shipyards' commercial orderbook was more than \$4.4 billion.

U.S. shipbuilding activity during the past fiscal year reflected the uncertain economic conditions that confronted shipbuilders worldwide. Repercussions from the 1973 oil embargo and the ensuing price escalations have continued to affect the tanker market. The drop in oil consumption by the industrialized nations that occurred during the past several years has resulted in an ever-increasing surplus of tankers. Tanker owners have been forced to scrap or lay up some of their existing tonnage and many cancelled tanker tonnage on order.

Here in the United States, where the tanker construction program is modest by international standards, the effects of this disruption were less severe than elsewhere in the world. Nonetheless, there were 22 U.S.-flag tankers in lay-up on June 30, 1975, and nine tankers on order in U.S. shipyards were cancelled during the fiscal year.

Although the present world tanker surplus is expected to continue for at least the next two years, we anticipate that market conditions in the United States will improve more rapidly. Increased employment opportunities for tankers should occur in the domestic trade with the opening of the Alaska Pipeline and in the foreign trade as a result of recent and projected Soviet purchases of U.S. grains. Likewise, new ship orders for liquefied natural gas (LNG) vessels, product carriers, bulk and neobulk carriers, and intermodal ships should be forthcoming as American-flag operators continue their efforts to upgrade the U.S. merchant fleet.

---

## Title XI Guarantees

Under Title XI of the Merchant Marine Act of 1936, MarAd guarantees the principal and interest on commercially placed mortgages and loans used to finance the construction or conversion of ships and certain marine equipment. With the Government guarantee behind him, the private operator usually finds it easier to obtain, at favorable interest rates, the large amounts of capital needed to modernize or expand his fleet.



During fiscal year 1975 guarantees totaling approximately \$699 million were approved. As of June 30, 1975, 1,067 vessels and 2,138 lighters, with an outstanding principal balance of \$4.2 billion, were covered by contracts or commitments under the program.

During the past year, both Houses of Congress passed legislation that would increase the present \$5 billion limit on the aggregate amount of unpaid principal that can be guaranteed by the Government. The Senate version raised the ceiling to \$8 billion, the House to \$7 billion. The two versions were submitted to conference to resolve the difference.

---

## CCF & CRF Programs

To encourage the expansion and modernization of all segments of the U.S. merchant marine, MarAd administers the Capital Construction Fund (CCF) and Construction Reserve Fund (CRF) programs. Through participation in these programs U.S. operators in the foreign and domestic trades obtain tax-deferral privileges on certain deposits.

Under the CCF program shipowners operating in the foreign, Great Lakes, and noncontiguous domestic trades may deposit vessel and investment earnings and capital gains on a tax-deferred basis, provided the monies are used to acquire or construct new vessels for these trades. The number of CCF agreements increased from 63 to 80 during the past year. As of June 30, 1975, there was \$296 million on deposit in CCF accounts.

Operators participating in the CRF program can defer the taxation of gain from the sale or other disposition of a vessel, provided the net proceeds are re-invested in a new vessel within three years. Although all U.S. domestic and foreign operators are eligible to participate in this program, it is used primarily by inland waterway and domestic coastwise operators. There were 12 CRF accounts with a combined balance of \$3 million as of June 30, 1975.

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## Operating Aid

MarAd awarded three new long-term, operating-differential subsidy (ODS) contracts for the bulk trades and renewed the 20-year contracts of three liner companies.

As of June 30, 1975, there were 26 operators holding 29 ODS agreements with the Agency. Of the 209 vessels covered under these agreements, 190 were in operation and 19 were under construction. Special ODS contracts for the carriage of grain to the Soviet Union covered 79 ships owned by 42 companies.

MarAd continued to monitor the financial condition of subsidized operators. When problem areas were identified, an *ad hoc* Agency team, with the company's cooperation, analyzed operations and provided recommendations for improved profitability. Companies involved have substantially benefited from these reviews.

The financial position of subsidized U.S.-flag ship operators improved dramatically during the past fiscal period. Astute management, combined with the financial assistance provided by the Title XI Mortgage Guarantee, Capital Construction Fund, and Operating-Differential Subsidy programs, produced a combined net income of \$120.9 million, as compared with a net loss of \$9.7 million in the previous year.

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## Great Lakes

The Agency's activities in support of the Great Lakes maritime industry were greatly expanded during the past year. MarAd established a new Great Lakes Region with headquarters in Cleveland, Ohio, and opened a Radar Training School in Toledo, Ohio. Plans call for the establishment of a marketing office in Detroit, Mich., in addition to the existing one located in Chicago, Ill.

This past year saw the return of American-flag foreign trade service on the Great Lakes, after an absence of more than six years. Lykes Bros. Steamship Co., Inc., initiated a monthly subsidized service to Mediterranean and Black Sea ports. A research contract awarded by MarAd is evaluating other potential overseas trade opportunities for U.S.-flag shipping companies on the Great Lakes.

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## Ports

During fiscal year 1975 MarAd placed increased emphasis on providing technical and promotional assistance to the Nation's ports. The agency has undertaken an extensive effort to rationalize the development plans of neighboring ports in order to reduce unnecessary and expensive duplication of facilities. Two area studies were completed—one on Pacific Northwest ports, the other on San Francisco Bay area ports. Future studies are planned for other sections of the country.

To assist inland river ports, MarAd and the East-West Gateway Coordinating Council of St. Louis are investigating ways to minimize the adverse effects of river level fluctuations on dock operations.

A computer program was designed to coordinate the movements of bulk shipments through the Nation's ports. With U.S. grain exports projected to increase significantly over the next decade, this system should help to eliminate the congestion and related problems that occurred in the past under the stress of heavy foreign grain purchases and during national emergencies. The program will be expanded to include petroleum and other bulk products.

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## Research and Development

A total of \$33 million—\$22 million in Agency funds and \$11 million in industry contributions—was expended in fiscal year 1975 on maritime research and development activities. The Agency encourages industry involvement in its R&D programs to insure that funds are directed to projects relevant to the industry's needs.

The Maritime Administration introduced the concept of recoupment into its procurement process this past year. Under a recoupment agreement, the

Government will be able to recover part of the developmental costs from the sale of technology or hardware developed under a MarAd R&D contract. The commercial sale of a marine gas turbine developed under an Agency R&D program should return between \$250,000 and \$750,000 to the Government over a two-year period.

Several projects focused on upgrading marine communications. MARISAT, a satellite communication system, is being tested by six U.S.-flag shipping companies operating on major ocean trade routes. About half of the Great Lakes bulk carrier fleet is participating in tests of a new VHF-FM telecommunications system that permits direct dialing into commercial telephone lines without operator assistance.

A combination of VHF-FM radio contact and leased telephone lines is employed in a communications system that MarAd developed for inland waterway vessel operators. In the next phase of this project, eight VHF-FM stations will be constructed along the lower Mississippi River and VHF radio equipment will be installed aboard 25 river vessels in preparation for initial testing and evaluation of the system.

The number of energy-related research projects undertaken by the Agency has increased significantly. In light of escalating crude oil costs, MarAd is investigating the feasibility of using lower-grade diesel fuels and fuels extracted from alternative sources, such as coal and tar sands and shale. Under MarAd auspices an ore carrier made a successful test run on the Great Lakes operating on heavy fuel derived from shale oil.

The Agency awarded several R&D contracts during the year to further improve the design and operational efficiency of marine engines.

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## U.S./U.S.S.R. Relations

A 1972 Maritime Agreement ushered in a new era of improved commercial relationships between the United States and the Soviet Union. Not only has trade between the two countries expanded, but maritime officials and scientific personnel have undertaken cooperative programs in the areas of port and cargo operations,

handling of hazardous cargo, port management training, and marine terminal technology and control systems under the 1973 U.S./U.S.S.R. Agreement on Cooperation in the Field of Transportation.

The Soviet and American maritime delegations met several times during the year to discuss the terms of a new maritime agreement to replace the 1972 agreement which expired December 31, 1975. The other major topic at the meetings was the freight rate to be paid U.S. operators carrying grain to the Soviet Union.

Because of distortions in international shipping markets, both countries agreed to discontinue use of the index system that had been employed to compute the U.S. Gulf/Black Sea freight rate. At the end of the fiscal year agreement had not been reached on a new index. (In September 1975, however, both sides agreed to a new index system that guaranteed a minimum freight rate of \$16 per ton for American operators engaged in the U.S.S.R. grain trade through December 31, 1976.)

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## Emergency Preparedness

MarAd continued to work closely with other Government agencies to foster the development of strong U.S. shipping and shipbuilding industries capable of supporting the Nation's armed forces in times of national emergency.

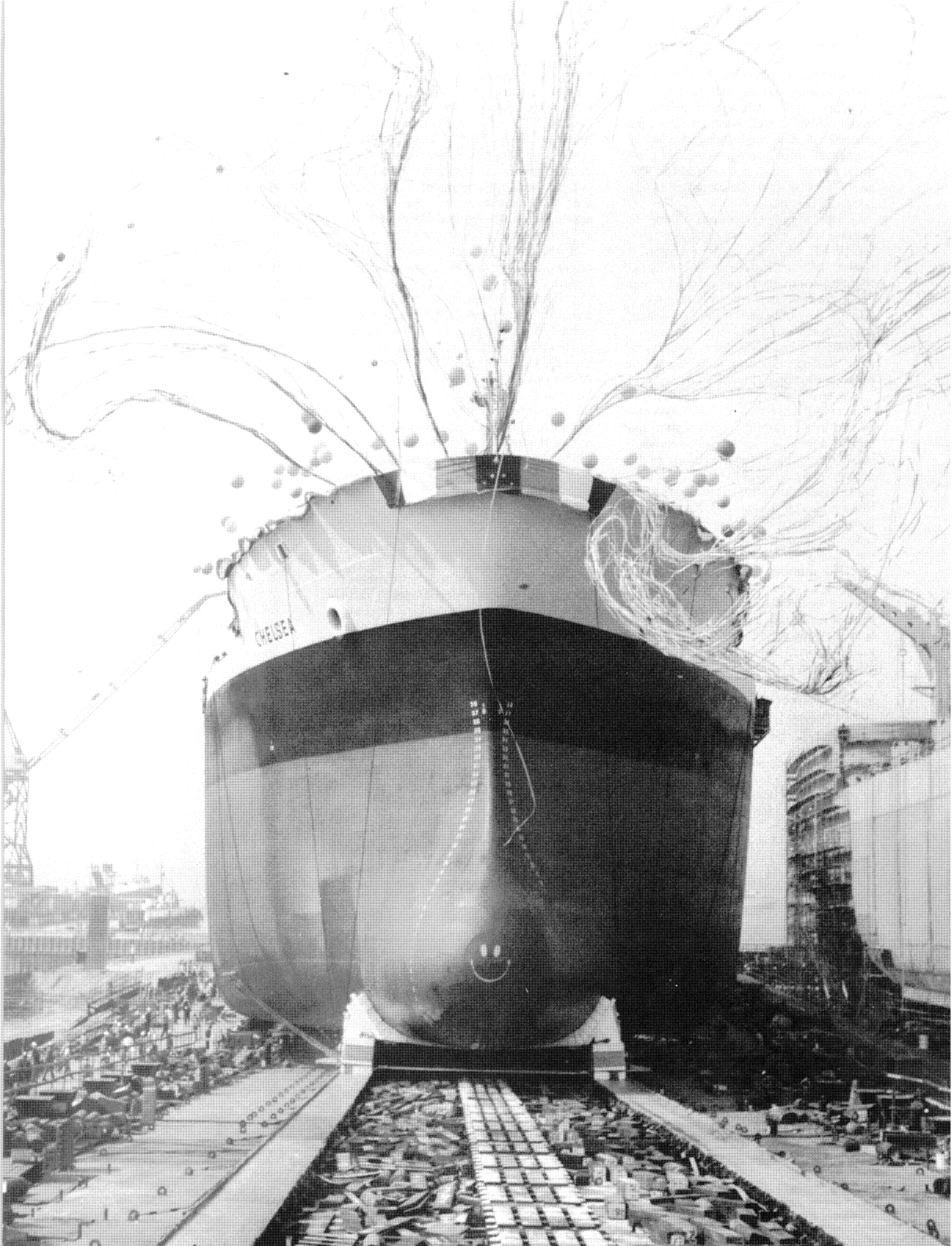
Existing American shipbuilding capacity was analyzed in a MarAd/Navy/Office of Management and Budget study. It concluded that sufficient shipyard capacity and materials existed to meet current commercial and naval ship construction requirements. Another study underway during the year examined shipyard mobilization capabilities that would be required in the event of international conflicts of varying duration.

To enhance the ability of the U.S. merchant fleet to provide logistical support to the armed forces, MarAd and the Navy have undertaken a joint research

program to develop modules and other equipment that could be quickly installed aboard commercial container-ships, making them suitable for underway replenishment and sealift missions.

U.S. merchant fleet mobilization capabilities were greatly enhanced by the establishment during the past year of the Merchant Vessel Locator Filing System (USMER). This system, which was scheduled to become fully operational in November 1975, requires all U.S.-flag merchant ships operating in the foreign commerce to keep national authorities informed of their at-sea locations and their port arrivals and departures.

To insure effective control and efficient operation of U.S. seaports during a national emergency, the Agency prepared an inventory of the Nation's port facilities and cargo-handling capabilities.



# Shipbuilding

## Contract Awards

During fiscal year 1975 the Maritime Administration (MarAd) granted CDS to build three product tankers. The Government will pay \$45.7 million or 35.08 percent of the total contract price of \$130.6 million. CDS is provided to offset the higher cost of building foreign trade vessels in the United States, rather than in lower-cost foreign shipyards. (See Appendix I for vessels under CDS contracts on June 30, 1975.)

Besides subsidizing the construction of three new vessels, MarAd awarded CDS for reconstruction work on eight existing ships. Container capacity was increased on four vessels, general cargo stowage space was enlarged on two breakbulk freighters, and the reduction gears and shafting systems were modified on two Lighter-Aboard-Ship (LASH) vessels. Of the total reconstruction cost of \$63.5 million, the Government will pay \$22.6 million in subsidy.

The limited number of contract awards during the past fiscal year reflected the adverse impact that the depressed tanker market had on shipbuilding activities worldwide. The emphasis on the construction of very large crude carriers (VLCCs) shifted as a result of a quadrupling of OPEC (Organization of Petroleum Exporting Countries) oil prices, consequent worldwide energy conservation, and the declining demand for tanker tonnage.

Private contracts were awarded for the construction of 18 ships with a deadweight tonnage of more than 2.1 million (see Table 1). These ships, valued at more than \$906 million, comprised six ore carriers, 11 tankers, and one Roll-on/Roll-off (RO/RO) van ship.

As of June 30, 1975, there were 83 deep-draft merchant ships, with a total deadweight of more than 8 million tons, on U.S. shipyard orderbooks, compared to 96 vessels a year earlier. Of these 83 vessels having a contract value of \$4.3 billion, 39 were being built with both CDS and Title XI Federal Ship Financing Guarantees. Of the remaining 44 vessels which were being financed privately, 11 carried Title XI Guarantees.

A slow-down in international offshore oil exploration and an oversupply of offshore drilling units significantly reduced new construction contracts for offshore drilling rigs. At mid-1975 new drilling rigs on order or under construction in American yards totaled 37, compared to 42 at the same time in 1974. A substantial number of the rigs had Government financing guarantees.

## Construction Subsidy

To equalize the disparity between U.S. and foreign shipbuilding prices, MarAd is authorized to pay a construction-differential subsidy. (See Appendix II for CDS expenditures since 1936.) To be eligible for CDS, a vessel must be built in the United States, owned by an American citizen, manned by an American crew, and operated under the U.S.-flag in the Nation's essential foreign commerce.

On June 30, 1975, CDS was being paid for the construction of 39 new ships and the reconstruction of five vessels (see Appendix I). Construction and reconstruction costs for these 44 vessels totaled almost \$2.5 billion, of which \$816 million will be paid by the Government. The new ships being built with CDS comprise 26 tankers, nine liquefied natural gas (LNG) carriers, and four RO/ROs.

During fiscal year 1975 CDS contracts for the construction of one 225,000 dwt. tanker and three 89,700 dwt. tankers were cancelled.

There were 51 CDS applications pending at the close of the fiscal year. They covered a total of 148 new vessels, consisting of 89 tankers, 33 LNGs, 10 ore/bulk/oil (OBO) carriers, six tug-barge combinations, four bulk carriers, three heavy-lift cargo vessels, two container-ships, and one mini-LASH.

To minimize delays in processing the payment of CDS to the shipyards, MarAd adopted a new procedure during the fiscal year. Payments are now made by the Finance Office of the MarAd region in

which the shipyard is located rather than from Washington, D.C. By reducing the need for short-term loans for working capital, this change in financial procedures has resulted in significant savings in shipyard operating costs.

## Ship Deliveries

Twenty-five new vessels, aggregating 1.2 million dwt., were delivered by American shipyards during fiscal year 1975 (see Table 2). In addition, subsidized reconstruction work on the cargo ship JEFF DAVIS, owned by Waterman Steamship Corp., and the LASH ATLANTICO and LASH PACIFICO, owned by Prudential Lines, Inc., was completed.

The following 12 subsidized vessels were delivered during the year:

- the LASH vessel SAM HOUSTON to Waterman Steamship Corp. for its U.S. Atlantic and Gulf/India, Pakistan, and Sri Lanka trade;
- the LASH vessels GREEN VALLEY, GREEN HARBOUR, and GREEN ISLAND to Central Gulf Steamship Corp. for Gulf/Southeast Asia service;
- the 89,700 dwt. crude oil tankers GOLDEN DOLPHIN, GOLDEN ENDEAVOR, and GOLDEN MONARCH to Aeron Marine Shipping Co. for worldwide operations;
- the 38,300 dwt. product tankers CHERRY VALLEY and CHELSEA to Margate Shipping Co. for worldwide operations;
- the 225,000 dwt. crude oil tanker WILLIAMSBURGH to Tyler Tanker Corp. for worldwide bulk trade; and
- the LASH vessels LASH ATLANTICO and LASH PACIFICO to Prudential Lines, Inc., for U.S. East Coast/Mediterranean service.



*This hydrofoil was constructed with the aid of MarAd's Title XI program. It is being loaded on an American-flag ship bound for Hawaii where it will be employed as an inter-island ferry.*

Ten of these 12 vessels had been ordered under the Merchant Marine Act of 1970, bringing to 19 the number of ships contracted for and delivered since enactment of the law.

U.S. shipyards also delivered 13 vessels built without subsidy:

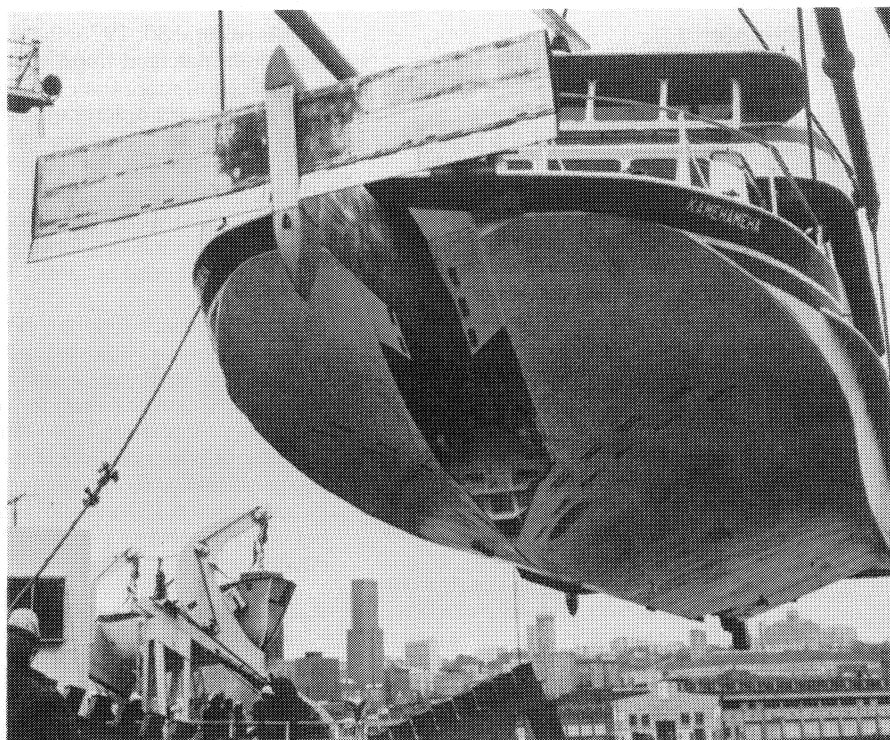
- seven 25,000 dwt. product tankers to Marine Ship Leasing Corp. for charter to the Military Sealift Command;
- one 120,000 dwt. crude oil tanker to Atlantic Richfield Co.;
- two self-unloading bulk carriers for the Great Lakes trade—one each for Kinsman Marine Transit Co. and American Steamship Co.;
- one RO/RO vanship to Transamerican Trailer Transport, Inc. for the East Coast/Puerto Rico trade;
- one 35,000 dwt. integrated tug-barge to Seabulk Tankers, Ltd.; and
- one 7,200 dwt. product tanker to Cleveland Tankers, Inc.

Deliveries of oceangoing merchant vessels by major shipbuilding nations during calendar year 1974 are shown in Appendix III.

## Title XI Guarantees

The Federal Ship Financing Program was established pursuant to Title XI of the Merchant Marine Act of 1936, as amended in 1972. It authorizes the Secretary of Commerce, acting through the Assistant Secretary for Maritime Affairs, to guarantee obligations made to finance the construction, reconstruction, and reconditioning of vessels and certain marine facilities and equipment. In the event of default by the shipowner, the U.S. Government guarantees payment of any principal and interest on the obligation.

The program encourages financial institutions to provide shipowners with long-term financing on favorable terms and conditions at interest rates that are comparable to those available to large, financially diversified corporations. Hence, ship operators can more easily obtain the large amounts of capital needed to modernize their fleets.



Since 1972 Title XI also has authorized refinancing of certain mortgages but only in the amounts outstanding and subject to statutory determinations by the Secretary of Commerce.

On June 30, 1975, the ceiling on the aggregate amount of unpaid principal that could be guaranteed by the Government was \$5 billion. Early in 1975 the U.S. Senate and House of Representatives passed legislation that would have raised the ceiling to \$8 billion and \$7 billion, respectively. The differences between the two bills had not been resolved at the end of the fiscal year.

Applications were approved for guarantees totaling approximately \$699 million during fiscal year 1975 (see Appendix IV). These guarantees covered 10 deep-draft vessels (4 of which were second mortgages), 64 ocean tugs or barges, 194 river tugs or barges, 14 drill rigs, 37 offshore drill service vessels, and 410 LASH lighters.

In addition, based on commitments made in previous fiscal years, guarantees were placed on 387 vessels of various types and 590 lighters.

Title XI applications approved and contracts in force on June 30, 1975, had a total outstanding principal balance of \$4.2 billion and covered 1,067 vessels and 2,138 lighters (see Table 3).

Pending applications for ship financing guarantees, as of June 30, 1975, encompassed construction or reconstruction of 488 vessels and 575 shipboard

lighters. The estimated total amount of the guarantees for these projects was \$2.9 billion (see Table 3).

The Revolving Fund of the Federal Ship Financing Fund received \$11.7 million in net income during the year, making the Fund's retained income \$67.1 million. This Fund is used to help underwrite the Government's guarantee and to pay the program's cost.

## Capital Construction Fund

The Capital Construction Fund (CCF) program was created by the 1970 amendment to the Merchant Marine Act of 1936 to assist operators in accumulating the large amounts of capital necessary to build or reconstruct ships. Any U.S. ship owner or operator engaged in foreign, Great Lakes, and noncontiguous domestic trades is eligible to participate in the program.

Any U.S. citizen owning or leasing an eligible vessel may enter into an agreement with MarAd to obtain tax-deferral

privileges on certain deposits or other property placed in a CCF. Eligible deposits include earnings from the operation of a vessel, proceeds from the sale of a vessel, and earnings from the investment of accumulated assets in the Fund.

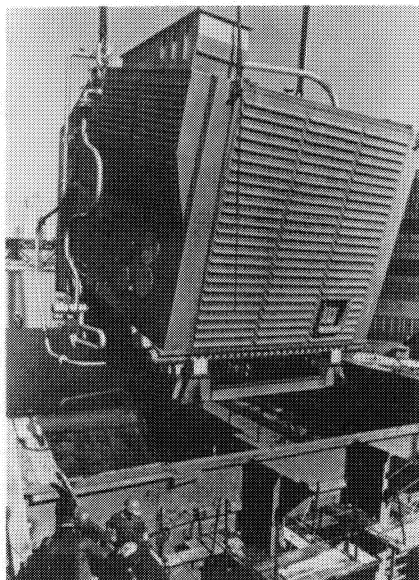
The number of individual and consolidated CCF Agreements increased from 63 to 80 during the year. Operators holding CCF Agreements are listed in Appendix V. As a result of these Agreements, the ship operators are committed to acquire, construct or reconstruct vessels, barges, and containers worth over \$4.9 billion during the next two decades.

During fiscal year 1975, the CCF holders deposited \$237 million into their accounts. Since inception of the program, \$546 million has been deposited in CCF accounts and qualified withdrawals have been made as follows: \$64 million for new construction, \$66 million for reconstruction of existing vessels, \$81 million for payment of debt obligations and \$39 million for acquisition of ships. As of June 30, 1975, the CCF balance was \$296 million.

In the past, approximately 25 percent of CCF monies has been used for new construction, 26 percent for the acquisition of new vessels, 33 percent for reconstruction, and 16 percent for payment of indebtedness on existing vessels. In the future, it is anticipated that more than 80 percent of the Funds will support the construction of new vessels generating approximately \$4.3 billion worth of work for American shipyards. About \$3.1 billion of these construction expenditures will be for vessels employed in U.S. foreign trade. Additionally, \$598 million will be spent for noncontiguous domestic trade vessels and over \$604 million for Great Lakes vessels.

## Construction Reserve Fund

To encourage the upgrading of the U.S.-flag fleet, the Construction Reserve Fund (CRF) permits eligible parties to defer the taxation of capital gains from the sale or disposition of a vessel, if the net proceeds from the transaction are deposited in a CRF and reinvested in a new vessel within three years. Because the benefits of the CRF program are somewhat similar to but not as broad as the benefits of the CCF program, the CRF is used predominately by vessel owners who operate on the inland waterways or in other trades not eligible to participate in the CCF program.



*This boiler is being installed aboard a VLCC under construction in Brooklyn, N.Y.*

During fiscal year 1975, 14 fund holders maintained an aggregate average balance on deposit of over \$2.5 million. Five of the fund holders made withdrawals totaling \$2 million for the construction of new vessels.

Three CRF accounts were closed during the past year by fund holders who had completed their new construction objectives, and one new CRF account was established. As of June 30, 1975, there were 12 existing CRF accounts with a total balance of over \$3 million (see Appendix VI).

## Sea Trials

Personnel of MarAd's Office of Ship Construction participated in the official trials of 61 vessels during the fiscal year to ensure that the basic requirements of the construction contract and specifications were met. Of these 61 vessels, eight were built with CDS and 53 were financed under the Title XI program.

## Ship Design

As a part of the Agency's continuing effort to maintain a mobilization base for merchant shipping in the event of a national emergency, MarAd completed a series of design studies to determine the cost and feasibility of converting troopships now in the National Defense Reserve Fleet to general cargo ships. After selecting a representative P2 ship, two conversion designs were prepared: one for a full conversion, which included upgrading habitability standards and cargo capabilities, and the second for a partial conversion, which focused on providing cargo lift capability at minimum cost. A third conversion design was completed using a World War II Victory troopship as a base hull.

Another part of this emergency preparedness effort involved completion of a study which determined the cost and feasibility of modernizing the remaining Victory cargo ships in the Reserve Fleet. Experience with manning Reserve Fleet vessels activated during the Vietnam conflict had indicated that habitability standards were inadequate to attract sufficient crew members in any type of emergency, except perhaps an all-out war.

In another project, the Agency developed a conceptual nuclear ship design for a single hull form, which can be utilized as a barge carrier or a full containership. The design was developed primarily for use as a standard against which commercial nuclear designs submitted by contractors to MarAd could be compared and evaluated.



A 20,000 dwt. RO/RO vanship under construction. Note the stern ramp (foreground) which permits cargo vans to be driven on and off the ship.

A computer program for the preliminary design of a liquid bulk carrier was developed and made available to the industry. The program permits determination of optimum ship characteristics based on current construction and operating costs.

A study on tanker ballasting explored the limits of light ballasting operations and discussed incentives to encourage such operations. Based on the early experiences of ship masters who attended the 1973 Intergovernmental Maritime Consultative Organization Marine Pollution Conference, a significant savings in fuel as well as improved maneuvering characteristics could be achieved if specified ballast levels were maintained.

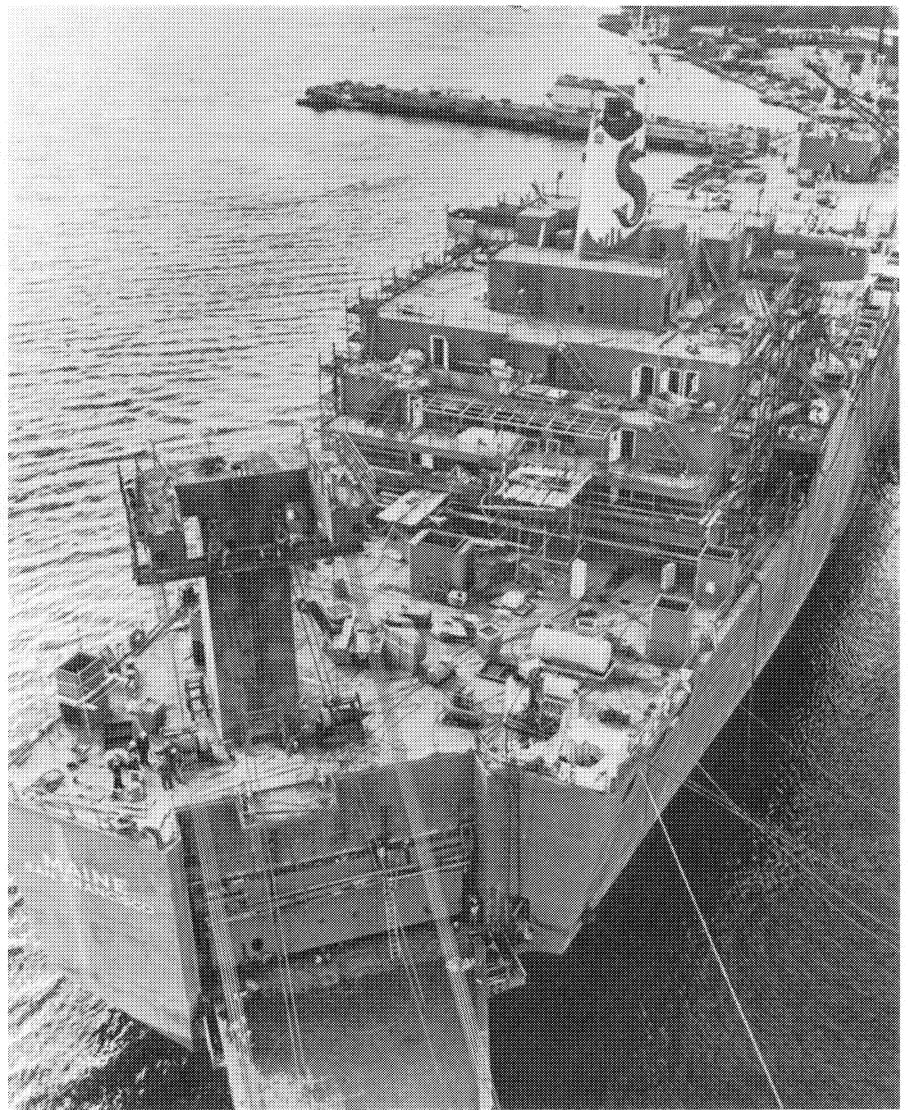
## Value Engineering

By promoting the development and application of design and engineering innovations, the Value Engineering Program attempts to lower the cost of ship construction without impairing essential vessel design characteristics. Information about new developments is relayed to U.S. shipbuilders through MarAd's active participation in the Value Analysis Committee of the Shipbuilders Council of America.

Potential savings of \$1.9 million were achieved in fiscal year 1975. Since the program's inception in 1957, cumulative savings have amounted to \$30.2 million, an average of more than \$1.5 million per year.

## Shipyard Improvements

All major American shipyards have made substantial dollar investments in plant improvements during the past several years. Since enactment of the Merchant Marine Act of 1970, the U.S. shipbuilding industry has invested in excess of \$738.7 million in modernization of facilities and capital improvements, of which \$221 million was expended during fiscal year 1975.



Despite the present uncertainties in the worldwide shipbuilding market, U.S. shipyards plan to spend approximately \$279 million for facility improvements during fiscal year 1976. Most of these expenditures, however, are part of long-term modernization programs.

The following are selected examples of modernization projects at five major yards:

*Newport News Shipbuilding and Dry Dock Co., Commercial Ship Division, Newport News, Va.*

This firm has committed \$180 million for a new commercial yard scheduled for completion in June 1976. Newport News is constructing a new building basin 1,600 feet long, 250 feet wide, and 44 feet deep that will be the largest in the United States when completed. Also being installed are a steel preparation building, panel

shop, sub-assembly areas, and a 900-ton Goliath crane.

*Avondale Shipyards, Inc., New Orleans, La.*

Avondale's \$42 million expansion program was scheduled for completion by October 1975. Under construction were new building ways on which two ships, each 960 feet by 176 feet, can be built simultaneously and a 900 foot by 260 foot floating drydock to be used for launching new ships and for major conversion work.

*General Dynamics Corp., Quincy Shipbuilding Division, Quincy, Mass.*

General Dynamics' \$40 million modernization program, begun in 1973, was completed in mid-1975. Two conventional inclined shipways were converted to large building basins to enable the yard to construct LNGs. In addition to its modernization program, the yard also committed in excess of \$50 million for new tools, machinery, and buildings at its recently acquired Charleston, S.C. facility that fabricates spherical aluminum tanks for LNG carriers.

*Sun Shipbuilding & Dry Dock Co., Chester, Penna.*

Upon completion of its \$40 million expansion program in late 1975, Sun Ship will be capable of building vessels as large as 400,000 dwt. Two major features of the program are the construction of a large floating drydock and a "shipbuilding platform" capable of simultaneously building two halves of a ship 1,400 feet long or simultaneously building two smaller ships, 700 feet in length or less.

*National Steel and Shipbuilding Co., San Diego, Calif.*

NASSCO's \$20 million expansion and modernization program, scheduled for completion in February 1976, will enable the yard to build 190,000 dwt. ships. In its new building basin, NASSCO will be able to produce ships with a length of 1,000 feet and a width of 170 feet, compared to the previous maximum size of 900 feet by 106 feet.

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## EEO—Shipyards

The Maritime Administration is responsible for insuring that Government contractors in the maritime industries provide equal employment opportunities (EEO) to all Americans regardless of race, color, religion, sex, or national origin. Through its Office of Civil Rights, MarAd conducts EEO compliance reviews at contractor facilities to audit employment practices and affirmative action programs. Where discriminatory practices are encountered, corrective programs were initiated. The construction and repair facilities that MarAd monitors account for 80 percent of the industry's total employment.

*Minority employment at American shipyards has risen dramatically since 1969.*

Minority group employment rose by 56.8 percent between 1969 and 1975, while total industry employment increased 9.1 percent over the same period. Minorities represented 19.6 percent of shipyard workers in 1969 and 28.2 percent in 1975.

Minority representation in skilled and white collar-salaried positions—both indicators of progress in the quality of jobs held—also improved. In 1975 minority employees accounted for 30.6 percent of the skilled workforce, compared to 17.7 percent in 1969. This represents a 69.2 percent gain over the six-year period. Minority white collar-salaried representation rose 200 percent between 1969 and 1975. Minority workers, who occupied only 3.6 percent of white collar positions in 1969, now fill 10.8 percent of shipyard salaried jobs.

As a result of MarAd's EEO programs, total female employment in the shipbuilding industry has risen 92 percent since 1969. Women accounted for 7.3 percent of the 1975 workforce, up from 3.8 percent in 1969. More women are being hired as machinists, shipfitters, and electricians, and for other jobs which were previously open only to males. In 1969, women held 159 blue collar jobs, representing 0.2 percent of all blue collar workers; by 1975, this had risen to 3,800 jobs, or 4.4 percent of the blue collar workforce.



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## MBE Program

In 1973, the Agency initiated a Minority Business Enterprise (MBE) Program to foster greater opportunities for minority entrepreneurs in the maritime industry. Working together with another Department of Commerce agency, the Office of Minority Business Enterprise, MarAd personnel encouraged U.S. shipbuilding and shipping companies to utilize the capabilities of minority contractors. During fiscal year 1975, minority contractors furnished goods and services worth more than \$9 million to the U.S. maritime industry.





# Ship Operations

## Status of U.S. Fleet

On June 30, 1975, there were 583 oceangoing vessels of 14.6 million deadweight tons (dwt.) in the privately owned U.S. merchant marine (see Appendix VII). The fleet consisted of 518 vessels in active status and 65 vessels in an inactive status. This fleet had an average deadweight of 26,060 tons, an average age of 17 years, and an average speed of 18 knots.

The 518 vessels in active status aggregated approximately 12.9 million dwt. and comprised 142 freighters, 219 tankers, 15 bulk carriers, 136 intermodal vessels (containerships, barge-carrying vessels, and RO/RO vanships), and 6 combination passenger/cargo ships. Of the 65 vessels in an inactive status 30 were laid up and 35 were temporarily inactive, either awaiting cargoes or undergoing repairs.

Areas of employment of U.S. merchant vessels are presented in Appendix VIII. The world's 15 largest merchant fleets, as of June 30, 1975, are listed in Appendix IX.

A composite picture of the financial status of U.S.-flag operators, both subsidized and unsubsidized, is presented in the Combined Condensed Financial Statements (Appendix X). Table 4 presents the status of the Capital Reserve Funds held by U.S. operators as of June 30, 1975.

## Operating Subsidy

The Maritime Administration is authorized to pay operating-differential subsidy (ODS) to U.S. shipping companies to offset the higher cost of operating a vessel in foreign trade under the American flag than under a foreign flag. In past years this form of aid generally covered wages,

insurance, maintenance and repairs not compensated by insurance, and subsistence of officers and crews on passenger ships. However, to reduce the industry's dependence upon subsidy, three new contracts executed during the fiscal year do not provide for subsidy payments for hull and machinery insurance premiums and maintenance and repairs not compensated by insurance.

All modern cargo vessels, including bulk carriers, that operate in an essential foreign trade are eligible for ODS. Total payments during fiscal year 1975 amounted to \$243.2 million (see Appendices XI and XII for ODS accruals and expenditures).

## Regular ODS

During fiscal year 1975 six new long-term (20-year) ODS agreements were executed. At year's end 26 operators (10 liner and 16 bulk) held 29 ODS agreements with the Agency (see Appendix XIII). Although 209 vessels were covered under these agreements, only 190 were in operation on June 30, 1975. The balance were either under construction or on order.

Payments during fiscal year 1975 pursuant to these regular ODS agreements totaled \$237.4 million. ODS accruals from January 1, 1937, to June 30, 1975, totaled \$4,443.8 million; recapture amounted to \$238.2 million, leaving a net accrual as of June 30, 1975, of \$4,205.6 million. Of the net accrual, \$4,101.6 million has been paid out, leaving an estimated unpaid balance of \$104 million at the end of the fiscal year (see Appendix XI).

## Contract Auditing

Prior to the enactment of the Merchant Marine Act of 1970, subsidized liner operators could not be paid the final 5 percent of accrued ODS until their annual accountings had been reviewed and approved by the Maritime Administration. During fiscal year 1975 such final payment audits were completed for 10 liner operators, generally covering the period from 1969 through 1971.

The Merchant Marine Act, as amended in 1970, provided for payment on a monthly basis of 100-percent of the accrued wage subsidy, without awaiting final audit. During the fiscal year wage subsidies were paid on a 100 percent basis to 10 liner and four bulk operators under the provisions of the 1970 Act.

Audits completed during the fiscal year resulted in reduced billings of approximately \$1.4 million to the Government.

## Uniform Accounts

During fiscal year 1975 the Maritime Administration continued its efforts to automate the various maritime aids programs.

The Cost Information Reporting System (CIRS) was completed, providing a computer capability that will benefit both MarAd and the maritime regulatory agencies, as well as the maritime industry, and provide cargo information and detailed voyage accounting.

Implementation of the system has been postponed, pending legislative authority to require all U.S.-flag operators carrying military cargo to record and report their costs.

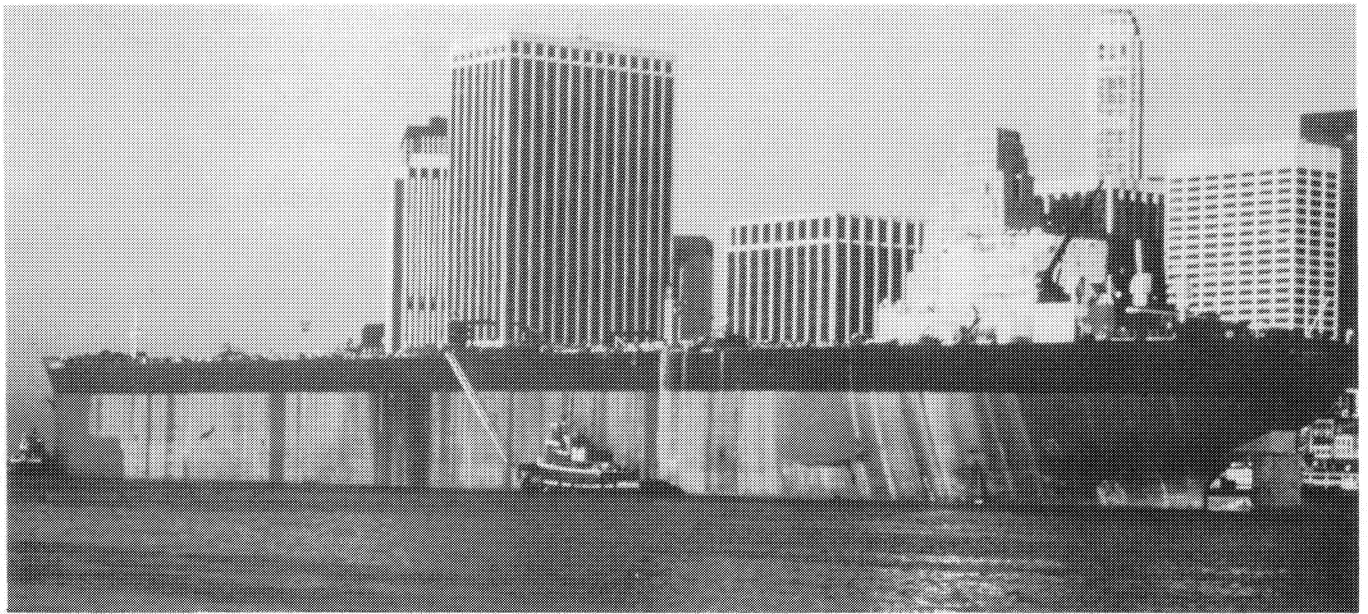
A new Voyage Performance Reporting System was developed in cooperation with subsidized companies. Data collected under this system will be used to provide a data base for another computer system which will be used in economic analyses of the shipping industry.

## Contract Awards

New 20-year operating subsidy contracts were awarded to Farrell Lines Inc., Delta Steamship Lines, Inc., Moore-McCormack Lines, Inc., Ajax Marine Shipping Co., Achilles Marine Co., and Athena Marine Shipping Co.

In the new ODS contracts with the three liner companies—Farrell, Delta, and Moore-McCormack—expenses for hull and machinery insurance and maintenance and repairs not compensated by insurance are ineligible for subsidy. Exclusion of these two types of expenses from subsidy participation is expected to result in savings of approximately \$59 million.

*The LASH vessel GREEN VALLEY and two sisterships, constructed with the aid of ODS, provide regular U.S.-flag service between U.S. Gulf and East Coast ports and Southeast Asia.*



Ajax will operate one 56,000 dwt. tanker now on order and Athena will operate a 56,000 dwt. tanker currently on order for United Shipping, Inc. Achilles has entered into a partnership with Aeron Marine Shipping Co. and Golden Eagle Refining Co., Inc., for the construction of a 56,000 dwt. tanker which Achilles will operate. When completed these three tankers will be operated in worldwide bulk service.

In April 1975, MarAd approved an ODS application by Lykes Bros. Steamship Co., Inc., for regular service between U.S. Great Lakes ports and the Mediterranean area, Africa, and Southwest Asia. When this service was instituted in May 1975, it was the first regular U.S.-flag service linking the Lakes and overseas areas since 1969.

### Pending Applications

Eleven ODS applications from non-subsidized operators were pending at the end of the fiscal year.

American Heavy Lift Shipping Co. has applied to provide a heavy-lift cargo service between U.S. and foreign ports. Cove Tankers Corp. seeks ODS to operate two tankers between the United States and the Soviet Union. National

Shipping Corp. requested ODS to carry dry bulk cargoes from the Canadian West Coast to the U.S. East Coast. Prairie Shipping, Inc.'s application covers the transportation of bulk and general cargoes between Great Lakes ports and Northern Europe. Suwannee River Lines, Inc., seeks ODS to transport liquid bulk chemicals between the United States and the Soviet Union.

Filing ODS applications for worldwide operations with ore/bulk/oil carriers or tankers were: Farrell Tankers, Inc.; Hedge Haven Corp.; Multi-Carriers, Inc.; Tankers Holding, Inc.; Waterman Carriers, Inc.; and Zapata Western Shipholding, Inc.

In addition to these applications from non-subsidized operators, three companies with existing ODS contracts have applied for operating subsidy to provide for additional sailings or other services as follows:

- American Export Lines, Inc.—for service from U.S. North Atlantic ports to ports in the United Kingdom and Western Europe (Trade Route 5—7—8—9) and to Scandinavia (Trade Route 6), and for service from U.S. South Atlantic ports to the United Kingdom and Western Europe (Trade Route 11).
- States Steamship Co.—for increased sailings on its Transpacific Far East Service (Trade Route 29).
- Waterman Steamship Corp.—for services from ports on the U.S. North Atlantic Coast to those in the United Kingdom and Western Europe (Trade Route 5—7—8—9) and Scandinavia (Trade Route 6), and from U.S. South Atlantic ports to ports in the United

*The 225,000 dwt. tanker WILLIAMSBURGH was the largest vessel delivered by an American shipyard during fiscal year 1976.*

Kingdom and Western Europe (Trade Route 11). Waterman also has applications pending for new long-term ODS contracts for service from U.S. Atlantic ports to the Far East (Trade Route 12), U.S. Gulf to Western Europe (Trade Route 21), and U.S. Gulf to the Far East (Trade Route 22).

- American President Lines, Ltd., for a long-term renewal of its ODS agreement for transpacific freight service (Trade Route 29), and U.S. Atlantic, Gulf and Pacific ports to ports in Indonesia and Malaya (Trade Route 17).

### Subsidy Index

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

Since the collection of foreign cost data takes several months, the Maritime Subsidy Board establishes tentative subsidy rates within 90 days of the beginning of each fiscal year. The tentative fiscal year 1975 rates for all subsidized vessels were completed in September 1974.

MarAd completed all final 1971 subsidy rates. For calendar year 1972, 69 of the 126 final rates applicable to liner and passenger vessels in liner service and 78 of the 136 final rates applicable to the Soviet Grain Program were completed.

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## Soviet Grain ODS

From October 1972 when the U.S./U.S.S.R. Maritime Agreement was signed, U.S.-flag ships have participated in the carriage of over 24 million metric tons of grain purchased by the Soviet Union. During this period American-flag ships carrying 5.3 million metric tons of grain made 154 voyages to Soviet ports.

As of June 30, 1975, 42 operators held short-term ODS agreements covering 79 vessels for the carriage of agricultural commodities from U.S. ports to ports in the U.S.S.R. (see Appendix XIV).

Payments during fiscal year 1975 under the special Soviet Grain Agreements totaled \$5.7 million. Twenty-six U.S. bulk vessels were fixed for 45 voyages during calendar year 1974 and accrued \$8.3 million in operating-differential subsidy.

The ODS agreements provide that one year after termination of the grain voyage the operators shall submit their actual subsidized costs to determine the total subsidy due on each voyage completed. On June 30, 1975, 97 audits of cost submissions had been completed for the 111 voyages terminated through June 30, 1974, permitting the determination of final subsidy rates and payments to the operators.

Since the program began in fiscal year 1973, operators have accrued \$57.6 million in ODS. Of this accrual, \$47 million has been paid, leaving an estimated unpaid balance of \$10.6 million at the end of the fiscal year (see Appendix XI).

In addition to exporting grain cargoes, these vessels were able to import substantial amounts of crude oil and petroleum products on return voyages.

It is expected that the number of operators and vessels involved in the Soviet Grain Program will increase in anticipation of future large grain purchases by the U.S.S.R.

## Contract Awards

During 1975 one new operator with three ships was awarded an ODS contract under the Soviet Grain Program, and eight existing operators, each with one vessel, terminated their ODS contracts.

## Grain Rates

During fiscal year 1975 the freight rates paid by the Soviet Union for the carriage of U.S. grain ranged from a high of \$16.13 to a low of \$9.50 a ton. The index system based upon the monthly average voyage charter rates for the carriage of heavy grains from U.S. Gulf ports to ports in the Holland/Belgium range was discontinued in March 1975 since this trade became abnormally distorted and did not provide a fair and reasonable U.S. Gulf to Soviet Black Sea freight rate. Until a new rate was negotiated, a fixed freight rate of \$9.50 per ton was agreed to for U.S.-flag fixtures made by June 30, 1975.

In September 1975 the Soviet Union agreed to a rate based on a new index system with a minimum rate of \$16 per ton to be paid to American vessels transporting grain to the Soviet Union between September 22, 1975, and December 31, 1976. The payment of this rate during calendar year 1976 depended upon the execution of a new maritime agreement between the two nations which became effective on January 1, 1976.

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## Passenger Ships

On August 30, 1974, Prudential Lines, Inc., forfeited the passenger vessel SS SANTA ROSA to the U.S. Government pursuant to the sole recourse provision of the Title XI Guarantee on the vessel. On April 14, 1975, the Government sold the vessel to Vintero Sales Corp. The SS SANTA ROSA was transferred to Venezuelan-flag and registry and was to be operated in the Caribbean cruise trade by Vintero as a joint venture with Veneolana de Cruceros del Caribe C.A. The SANTA ROSA was the last vessel authorized for foreign sale under the Passenger Ship Sales Act (Public Law 92-296). Four other vessels were previously sold under the Act.

Public Law 93-330, signed on June 30, 1974, authorized the sale of the SS INDEPENDENCE, owned by American Export Lines, Inc. On July 3, 1974, authorization to sell the vessel to Atlantic Far East Lines, Inc., was granted and the sale was consummated. The vessel was transferred to Liberian flag and registry to be operated as a passenger vessel in the worldwide cruise trade.

The passenger liner SS UNITED STATES, acquired by the Maritime Administration under Public Law 92-296 on February 5, 1973, remained in lay-up status at Norfolk, Va. Several proposals to reinstate the vessel in service were received during the fiscal year but were denied for various reasons, ranging from lack of financial backing to uses not in accordance with the requirements imposed by P.L. 92-296. However, the Agency continued to seek a qualified purchaser. At the close of the fiscal year, a new Invitation to Bid on the vessel was being prepared.

On June 30, 1975, the active U.S.-flag passenger fleet consisted of the SS MARIPOSA and the SS MONTEREY, operated by Pacific Far East Line, Inc., in the Pacific trade, and four combination passenger/cargo vessels, the SSs SANTA MAGDALENA, SANTA MARIA, SANTA MARIANA, and SANTA MERCEDES, operated by Prudential Lines, Inc., in the South American trade. During fiscal year 1975 the SANTA MAGDALENA was reinstated in Prudential Lines' service after a period of inactivity.





*This new, 90,000-ton crude oil tanker, the GOLDEN ENDEAVOR, was placed in worldwide operation during fiscal year 1975.*

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## Sec. 804 Activities

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

During fiscal year 1975 the following waivers were granted under Section 804:

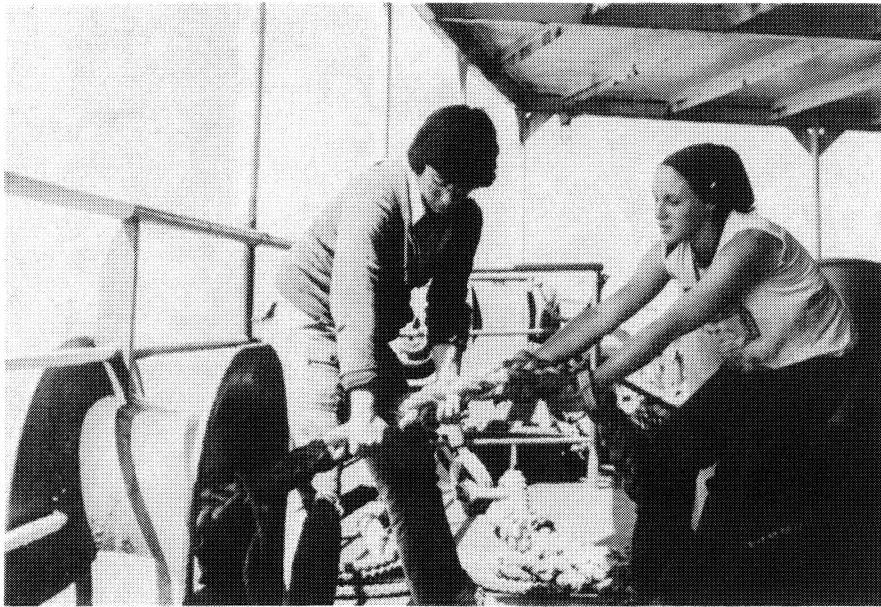
- Atlantic Richfield Co.—to permit it to charter and/or operate five foreign-flag vessels in connection with its ODS agreement for the Soviet grain trade.
- Aries Marine Shipping Co.—to permit it and affiliated companies (Ajax Marine Co., Athena Marine Shipping Co., and Achilles Marine Shipping Co.) to operate five foreign-flag vessels.
- Zapata Products Tankers, Inc.—to permit foreign-flag activities of certain affiliated companies.
- Zapata Products Tankers, Inc.—to permit an affiliate, Zapata Off-Shore Service, Ltd., to own and operate a foreign-flag vessel.
- Delta Steamship Lines, Inc.—to permit it to continue to act as husbanding agent for Empresa Lineas Maritimas Argentinas vessels, which serve the U.S. Gulf/South American trades.
- Delta—to permit it to continue to act as husbanding agent for North American-West African Lines member

company vessels, which serve the U.S. Gulf/West African trades.

- Delta—to permit it to continue to act as husbanding agent for Booth Lines vessels, which serve the U.S. Gulf/South American trades.
- Farrell Lines, Inc.—to permit it to continue to operate its foreign-flag feeder service at Monrovia, Liberia.
- Farrell—to permit it to continue to act as agent for Nigerian National Shipping, Ltd.

The waiver renewals of Delta and Farrell were granted in connection with the two companies' new long-term ODS agreements, which became effective January 1, 1976.

In addition, 35 companies received extensions of previously granted waivers to allow them continued participation in the special Soviet Grain ODS Program.



*Increasing numbers of women are being employed in non-traditional positions in the U.S. merchant marine. Handling lines is routine for these women crew members on an American-flag tanker.*

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## Trade Routes

Several liner trade routes and liquid and dry bulk cargo trades were reviewed in connection with ODS applications or modifications of areas to be served in existing ODS contracts.

The following services were found to be essential to the foreign commerce of the United States:

1. Worldwide liquid and dry bulk services in the foreign oceanborne commerce of the United States.
2. Liner freight service on essential United States Trade Area No. 4 between U.S. Great Lakes ports and ports in the Mediterranean Sea, India, the Persian Gulf and the Red Sea. Lykes Bros. Steamship Company, Inc., began operating on Trade Area No. 4 with the sailing of the SS MARJORIE LYKES on May 4, 1975.

A revised version of "Essential United States Foreign Trade Routes" was published in June 1975.

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## EEO—Ship Operators

The employment of minorities by major shipping companies has risen significantly since 1969 when MarAd assumed responsibility for monitoring the American lines' compliance with EEO statutes.

In 1975 minority employment reached 1,420 persons or 17.2 percent of the total shoreside (non-casual) workforce. This contrasts with 755 minority group members employed in 1969, or 10 percent of the shoreside workforce. Since 1969 total shoreside (non-casual) employment increased by 9.5 percent while minority employment during the period increased by 88 percent.

Minority participation in executive and management positions has more than doubled since 1969, from 3.1 to 6.5 percent. Minority representation also doubled among professionals, increasing from 6.2 percent in 1969 to 13.8 percent in 1975.

The status of women in the shipping industry has also improved, with more females being employed in non-traditional areas. In 1975, women constituted 4.6 percent of all executive and managerial positions and 18.8 percent of all professional employees. In all, 37.2 percent of the total shoreside workforce in the shipping industry was made up of women.

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## Foreign Transfers

The Maritime Administration approved the transfer to foreign firms of 88 ships of 1,000 gross tons and over. Eighteen of these ships were sold for scrapping abroad. Thirty-two of the vessels were undocumented or registered under foreign flags although owned by U.S. citizens (see Appendix XV).

Approvals were also granted for the foreign transfer of 537 ships of less than 1,000 gross tons. They included 400 commercial and 137 pleasure crafts. Charters of U.S.-owned ships to aliens were approved on 94 ships of 1,000 gross tons and over, and 141 smaller vessels.

Three banks were approved as new trustees and 49 banks were approved to continue on the Roster of Approved Trustees, pursuant to Public Law 89-346 and General Order 107. Approval was granted for U.S. financial institutions to assign their interests in three foreign construction contracts to aliens.

There were 34 sale violations on privately owned ships, of which 27 were mitigated. User charges for filing applications for foreign transfers and similar actions amounted to \$61,078.75.





# Domestic Operations

The domestic segment of the U.S. merchant marine moves nearly one billion tons of cargo annually. The Maritime Administration in recent years has expanded its programs in the domestic areas to insure the smooth flow of all commodities. Inland waterways and Great Lakes operators, as well as those in the coastwise, intercoastal and noncontiguous trades, have benefited from MarAd's programs.

## Promotion

During fiscal year 1975 the Agency published a report entitled *Domestic Waterborne Trade of the United States, 1965-1972* that lists commodities moved in the domestic trades, the types of vessels employed, and waterborne traffic between geographic areas. This information provides the data base of the Maritime Domestic Commodity Flow Data Bank, which supports MarAd's market development efforts on behalf of the domestic merchant fleet.

MarAd prepared and distributed to the members of the domestic shipping industry a detailed report on the status of programs developed at the First National Planning Conference on Domestic Shipping sponsored by the Agency in 1972. Of the 110 program elements identified during the Conference as necessary for an effective domestic shipping program, 16 have been completed, 67 are either in progress or ongoing in nature, and 27 are awaiting action. Completed projects included development of prototype communication systems for Great Lakes and inland operators, implementation of legislation allowing certain inland vessels as small as 25 gross tons to participate in the Title XI program, and completion of several economic feasibility studies



The 10,500 h.p. towboat ARGONAUT, shown as she departed from the Dravo shipyard where she was built.

to identify potential waterborne transport markets on the Great Lakes, Chesapeake Bay, and the coastwise services between New York and Maine. In addition MarAd was instrumental in convincing the American Hull Insurance Syndicate to increase the maximum hull insurance coverage from \$15 million to \$40 million per vessel.

The activities of other Government agencies whose rules and regulations impact on the domestic shipping industry are monitored on a continuing basis. When new rules affecting the industry's day-to-day operations are proposed, MarAd insures that waterborne interests are properly considered. During the past year position papers were developed on emergency petroleum allocation regulations, hazardous materials discharge penalties, discriminatory rail rates, and vessel vapor recovery systems.

## Great Lakes

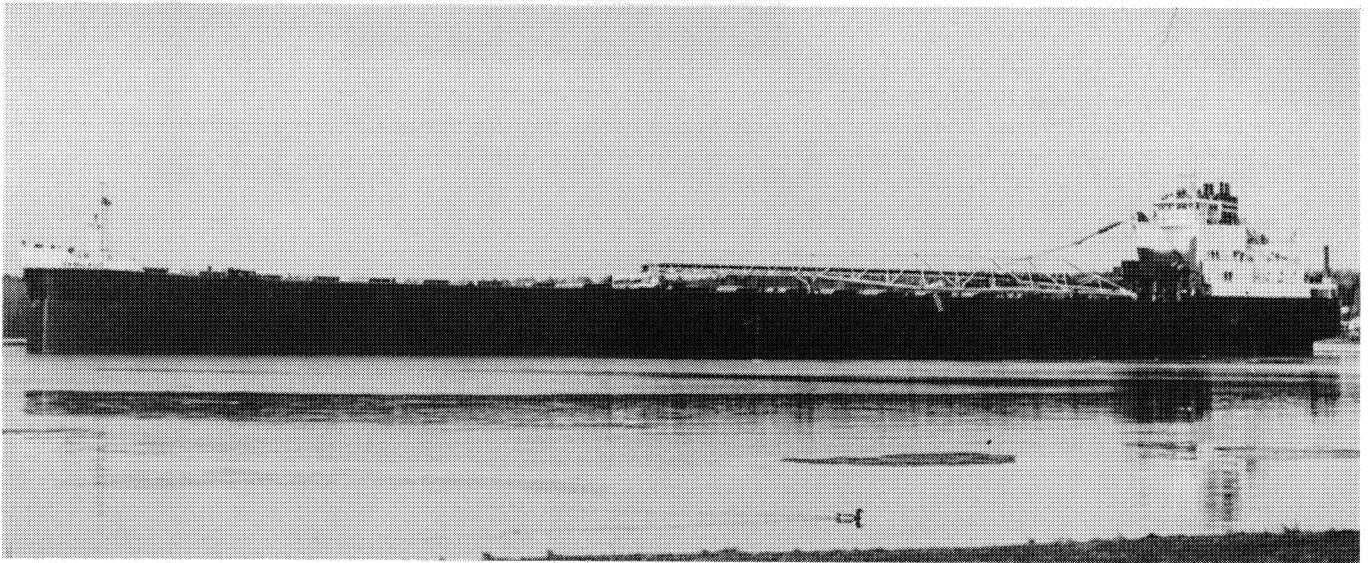
Consistent with the Merchant Marine Act of 1970, which recognized the Great Lakes as "the Nation's fourth seacoast," MarAd established a new Great Lakes Region to serve the area's maritime community. In addition to the Region headquarters located in Cleveland, Ohio, MarAd will have two marketing offices in the Region—one in Chicago, Ill., the other in Detroit, Mich.—and a Radar Training Center in Toledo, Ohio.

Regularly scheduled American-flag service between Great Lakes and foreign ports, which was discontinued in 1969, resumed during the year. Lykes Bros. Steamship Co. initiated a monthly subsidized service linking the Great Lakes with the Mediterranean area, Africa, and Southwest Asia.

A MarAd research effort was initiated during the fiscal year to identify business opportunities on the Great Lakes for U.S.-flag shipping companies.

River barge tows, such as this one on the lower Mississippi River, move hundreds of millions of tons of cargo annually on America's vast inland waterways system.





The first U.S. commercial test of marine heavy fuel derived from oil shale occurred aboard a U.S.-flag ore carrier on a round-trip voyage between Cleveland, Ohio, and Marquette, Mich. MarAd joined with the U.S. Navy, U.S. Coast Guard, and private industry to conduct this test. The shale-derived fuel, which had operating characteristics similar to No. 6 fuel oil, proved to be a suitable alternative fuel for marine applications.

The Agency continued to work with other Government agencies on projects connected with the extension of the navigation season on the Great Lakes and St. Lawrence Seaway. Traffic movement was sustained on the Great Lakes during the 1974-75 winter months, resulting in the first 12-month navigation season on the Lakes. A sociological survey to determine the impact that such an extended season has on vessel crews and lock and terminal personnel also was undertaken.

MarAd has developed a VHF-FM telecommunications system that permits Great Lakes vessels to dial directly into commercial telephone lines without operator assistance. A network of six stations was installed during fiscal year 1975. During the year about half of the U.S. bulk carriers operating on the Great Lakes were participating in evaluation tests of the new system.

See Table 5 for the composition of the U.S. Great Lakes fleet.

*In April 1975, Lykes Bros. inaugurated regular service between the Great Lakes and Mediterranean and Black Sea ports with the MARJORIE LYKES, shown here loading outbound cargo at the Port of Detroit.*

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The 630-foot self-unloader SAM LAUD joined the Great Lakes fleet in April 1975.

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## Inland Waterways

Approximately 600 million tons of cargo were transported on the inland waterways of the United States in 1974. This traffic consisted primarily of barge movements of energy products, raw materials, and agricultural commodities.

To assist in the safe and efficient movement of these cargoes, MarAd and inland waterways carriers jointly funded a research project that developed a new communications system for river vessels. The Inland Waterways Communications System (IWCS) enables towboats to communicate with company offices through a combination of VHF-FM radio contact and leased telephone lines. Plans were made for initial testing of the system on the lower Mississippi River during fiscal year 1976. Eight VHF-FM stations will be constructed at strategic points along the Mississippi River between Cairo, Ill., and Baton Rouge, La. During a one-year trial period 25 towboats will participate in system testing and evaluation.

A joint MarAd/U.S. Coast Guard *Tank Barge Study* was published during fiscal year 1975, culminating a three-year effort to identify tank barge designs that would minimize oil pollution on the inland waterways. According to the study, double-walled tank barges are significantly more effective than single-skin barges in preventing oil spills. Another joint study underway will identify, test, and evaluate interim repair materials for tank barges.

To help prepare for expanding traffic volumes on the inland waterways, MarAd continued its work in the area of water resources development. Of special note was the Agency's participation in a Water Resources Council study examining Federal planning and cost-sharing policy options for water and related land programs mandated by the Water Resources Development Act of 1974.

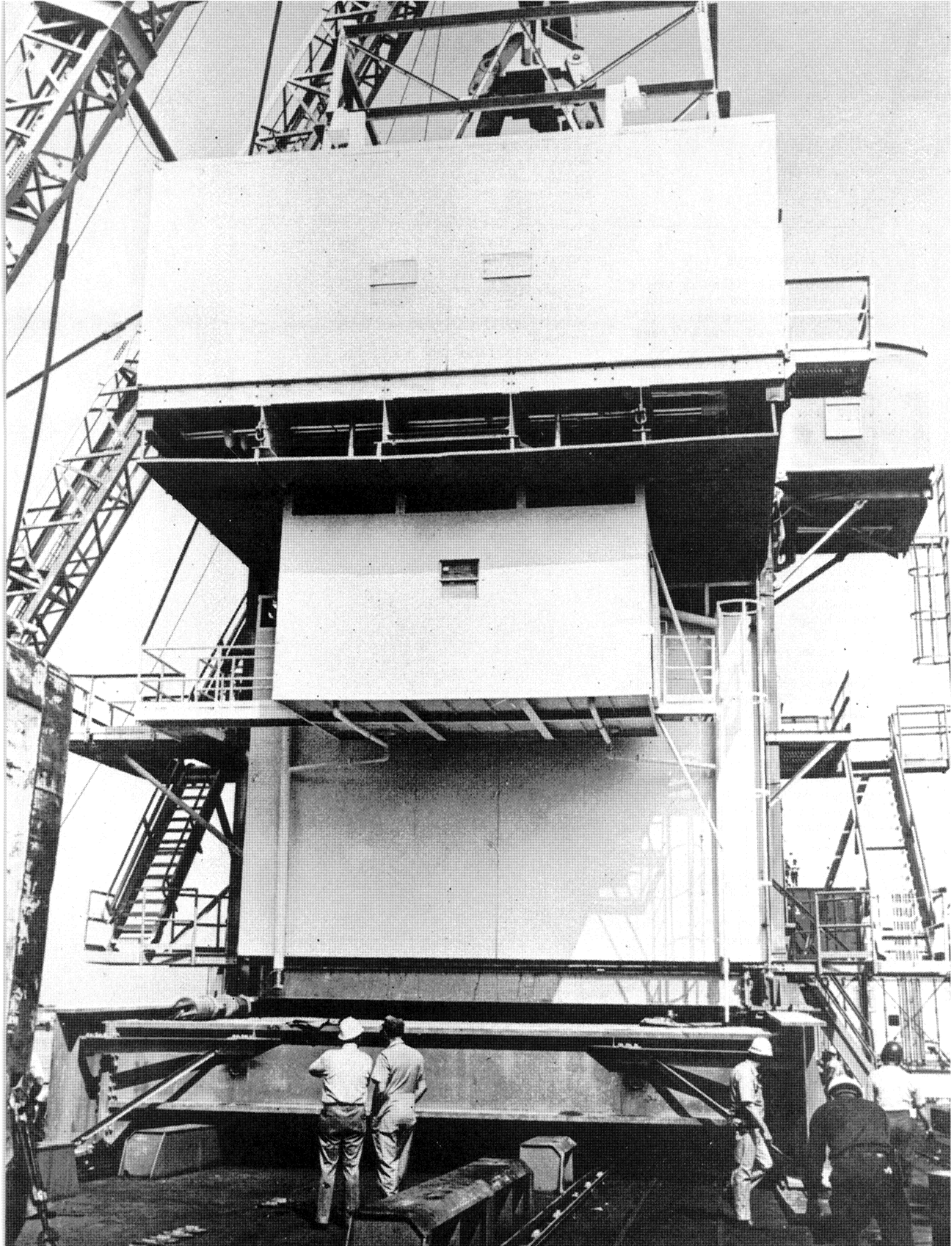
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## Domestic Ocean

To identify new markets for U.S. tanker tonnage, petroleum movements between the Virgin Islands and the U.S. mainland were analyzed in terms of refinery capacity, product destination, oil impact regulations and fees, vessel operating costs, and charter rate levels and trends. The results indicate that by 1980 approximately 25 U.S.-flag tankers of 30,000 dwt. could find employment in this trade. This number could be significantly increased if the Virgin Islands' exemption from the cabotage laws were rescinded.

To facilitate liner cargo movements between domestic and foreign trade areas efficient waterborne feeder systems are essential. Contracts were awarded to Sea-Land Service, Inc., to develop a feeder system and containerships, and to Delta Steamship Lines, Inc., to develop one for LASH or Seabee operations.





# Market Development

The Maritime Administration has under way an extensive marketing program that involves: (1) improving the sales efforts of U.S. shipping companies by providing timely reports on cargo movements and opportunities; and (2) informing shippers of the advantages of using American-flag ships. The program's basic goal is to increase overall U.S.-flag carriage of the Nation's foreign trade.

## Marketing Program

The marketing program has been concentrated in several areas: personal contacts with shippers to make them aware of the benefits of using U.S.-flag ships; dissemination of information to shippers and operators through studies, publications, seminars, and forums; data processing assistance through the Shipper Information and Market Lead Information systems; and market forecasting through the Trade and Fleet Forecasting Committee.

Staff initiatives in MarAd's regional offices form the basis of the shipper contact portion of the market development program. MarAd's marketing representatives, located in seven major cities, personally contact importers, exporters, freight forwarders, state purchasing officers, trade associations, and others controlling or influencing the routing of oceanborne cargo. Through these contacts the representatives acquaint shippers with the importance, both from a corporate and a national perspective, of the U.S.-flag fleet. These contacts also provide MarAd with the opportunity to identify obstacles interfering with shipper patronage of U.S.-flag carriers and to initiate steps to remove any such impediments.

*The versatility of modern U.S.-flag ships permits manufacturers to assemble huge pieces of equipment at the plant and ship them intact, thus reducing costs. Formerly, this piece of North Sea drilling equipment weighing 384 tons and standing 73 feet tall being loaded on the deck of a SEABEE would have been shipped knocked down.*

During fiscal year 1975 direct contact was made with policy level executives of over 3,700 firms engaged in international commerce, resulting in hundreds of firm commitments to support the "Ship American" program. These included contacts made with policy level executives of more than 70 percent of the 1,000 largest U.S. companies which engage in foreign trade. This individual approach has resulted in more than half of those companies contacted issuing policy directives to use U.S.-flag ships whenever possible.

Unsolicited reports received during the past two years from 120 shippers indicate that some \$49 million in freight revenue, which would otherwise have gone to foreign shipping concerns, was channeled to U.S.-flag operators as a result of the Agency's marketing program.

MarAd has significantly expanded the dialogue between all segments of the maritime industry and the shipping public, as well as Federal and local Government entities involved in shipping. Jointly-sponsored seminars, forums, and other programs have been held to generate a direct exchange of views between all segments of the maritime industry and the trading community they serve.

Two computer-based marketing assistance programs initiated in fiscal year 1974 were completed and became operational during 1975. The Shipper Information System provides carriers with general information on existing cargo movements such as the shippers, mode of shipment, existing logistical problems, and, where appropriate, suggested methods for improving U.S.-flag services. Complementing this program, the Market Lead System identifies and tracks intermediate and long-term business opportunities for U.S.-flag operators. This system will be managing data on 300 to 400 cargo-producing projects by the end of fiscal year 1976.

These systems will further improve communications between shippers and U.S.-flag carriers and enable the carriers to better anticipate the service requirements of exporters and importers.

During the fiscal year MarAd's Eastern Region, under the sponsorship of the National Maritime Council, provided a Shipping Information Booth at two large conventions where heavy machinery and equipment were displayed and sold. As a result, hundreds of marketing contacts and sales leads were acquired by MarAd and passed on to American-flag carriers.

Another example of Agency marketing activities was the participation of MarAd's Central Region in AGRI-FAIR '75, the first international trade exhibit sponsored by the State of Mississippi. The contacts made with visiting foreign buyers

of agricultural implements and manufacturers and distributors of agricultural equipment resulted in documented new business for American-flag carriers.

In all, more than 10,000 cargo leads were provided to U.S.-flag shipping companies during the fiscal period.

During fiscal year 1975 MarAd also created a Trade and Fleet Forecasting Committee to ensure a coordinated Agency response to the increasing demand for a broad range of U.S. foreign trade forecasts. A short-term forecast of U.S. exports was completed and distributed to operators. In addition, a comprehensive package of short-term, mid-range, and long-term foreign trade forecasts was undertaken.

In the past the Agency's main efforts have promoted shipper patronage of U.S.-flag liner vessels. However, during 1975 MarAd placed new emphasis on marketing bulk shipping systems. In addition, a bulk marketing program is being developed which will initially concentrate on generating shipper and investor interest in bulk vessel construction, particularly dry bulk, specialty product, and neobulk ships.

Reflecting the success of the Agency's promotional activities, U.S.-flag ships carried 41 million long tons of cargo in calendar year 1974, or 6.5 percent of U.S. oceanborne foreign trade, as compared with 25.2 million long tons or 5.3 percent in 1970. (See Table 6 for tonnage and value of U.S. oceanborne cargoes from 1965 to 1974.)

## National Maritime Council

Comprised of all major segments of the American maritime industry and MarAd, the National Maritime Council (NMC) was formed to coordinate promotional and marketing efforts of the American merchant marine. MarAd's Office of Market Development serves as executive secretariat for the NMC, both nationally and in each of the NMC's four regional divisions.

In the four years of its existence, the NMC has fostered a spirit of cooperation among all segments of the industry. It brings together U.S.-flag steamship companies, maritime labor unions, shipbuilders, and Government officials in a nationwide effort to generate cargoes for the U.S. merchant fleet. A series of dinners, panel discussions, seminars, and luncheons sponsored by the NMC has brought the management of companies engaged in international trade in direct contact with maritime industry officials and has prompted a useful exchange of information.

Through NMC efforts a more responsive relationship is developing between the maritime industry and the Nation's foreign trade community. For example, as a result of questions raised by citrus and fresh produce shippers at NMC-sponsored forums held in Florida, a special team of representatives from U.S.-flag liner companies, the Department of Agriculture, and MarAd met with the shippers to discuss transportation problems peculiar to their industry and develop effective solutions.

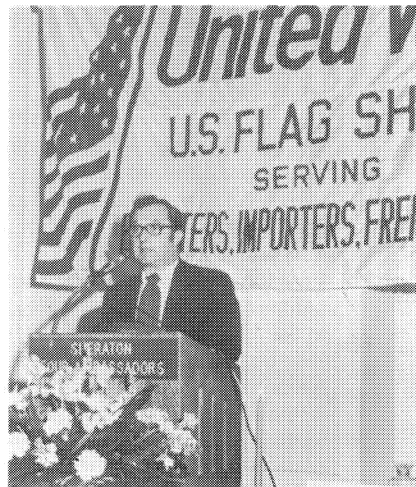
One of the Council's most important programs, the Shipper Advisory Program—whereby leading distribution executives of export/import firms serve as advisors to keep the Council informed of the business community's service requirements—expanded during the fiscal year and now includes 117 executives serving as advisors. Formation is currently under way of a National Shipper Advisory Board which will incorporate the existing structure of the Regional Boards, providing a national voice and more direct communications between shippers and the NMC's Board of Governors.

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## U.S./U.S.S.R. Liner Cargoes

The 1972 Maritime Agreement between the United States and the Soviet Union assures ships of each nation access to at least one-third of the cargo moving between the two nations and provides that parity (measured in dollar freight revenues) will be maintained in cargo movement.

During fiscal year 1975 direct service to the Soviet Union was maintained by three U.S.-flag liner operators. In addition, U.S.-flag container service to the



Soviet Union was available to shippers on a transshipment basis. The U.S. accountable liner revenue share from November 1972 to December 31, 1974, amounted to \$18,077,123 as compared to the Soviet share of \$16,170,248 for the same time period.

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## Preference Cargoes

The Maritime Administration monitors the activities of all civilian Government agencies subject to the cargo preference laws of the United States. The Agency insures that U.S.-flag vessels participate in such shipments pursuant to applicable statutes. Table 7 presents U.S.-flag participation in civilian agency preference cargoes and Export-Import Bank-generated cargoes during calendar year 1974.

The Cargo Preference Act, Public Law 664, requires that at least 50 percent of all Government-generated cargo be shipped on privately owned U.S.-flag vessels, to the extent such vessels are available at fair and reasonable rates. A computer-aided system and concentrated interagency liaison has permitted MarAd to process over 22,000 ocean bills-of-

Assistant Secretary Blackwell responds to a question from one of some 400 exporters and importers during an NMC forum.

loading on this type of cargo and monitor an expanded number of Government agency shipments to insure compliance with the Act.

As in the past, shipments generated by the U.S. Department of Agriculture (DOA) and the Agency for International Development (AID) comprised about 99 percent of all non-military cargoes moving under the Cargo Preference Act.

For the second consecutive year the total volume of DOA cargoes shipped under PL 480, the "Food for Peace" pro-



gram, dropped appreciably. The 1974 tonnage was 1.33 million tons less than the 1973 shipments and 6 million tons less than the 1972 tonnage. AID programs also generated less cargo in 1974 than in previous years. AID shipments in 1974 showed a drop of 1.4 million tons from the 1973 volume.

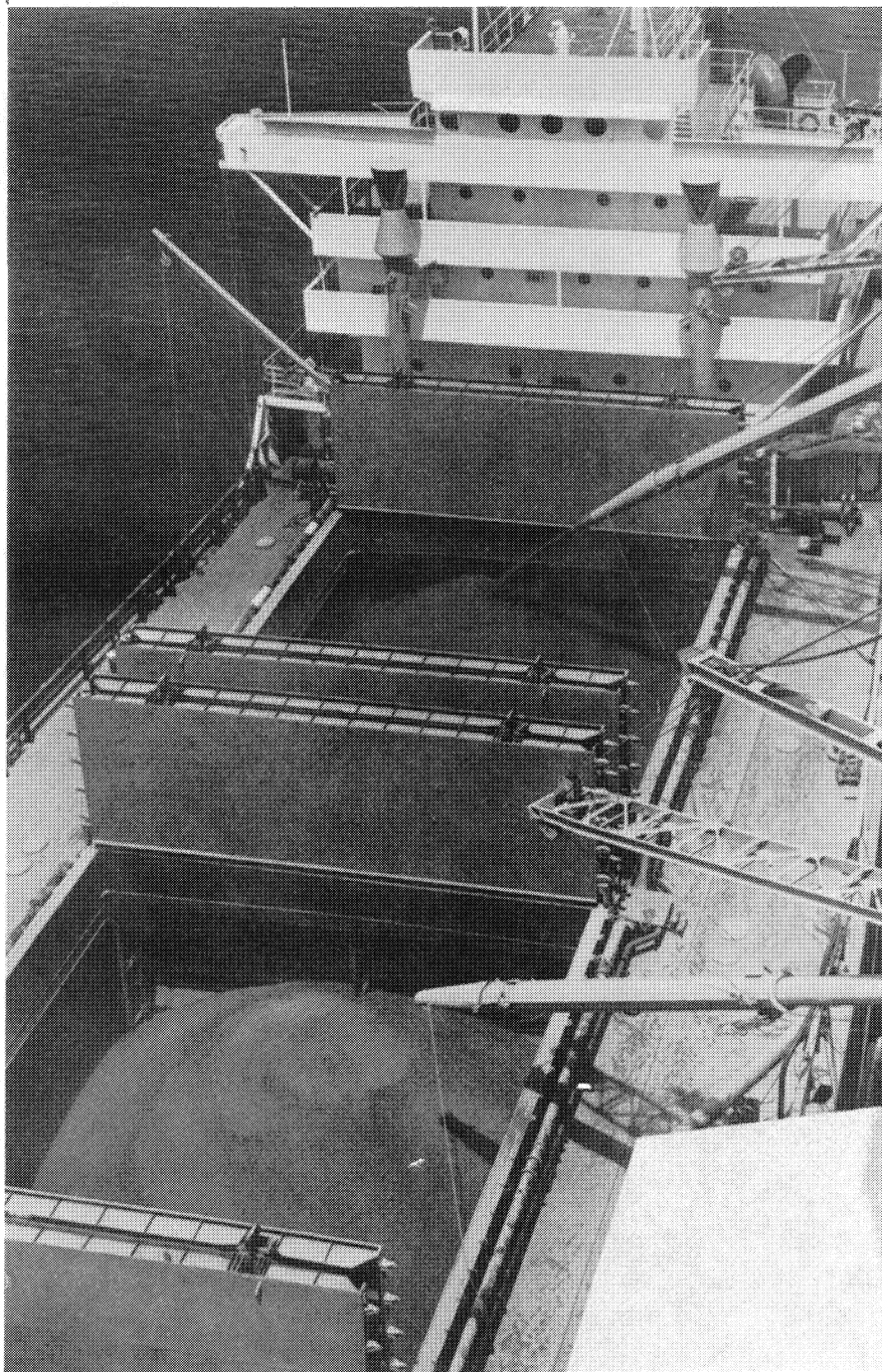
The 1974 shipments of Government agencies and the percentages of U.S.-flag vessel utilization are shown in Table 7. The three following agencies failed to meet the 50 percent U.S.-flag requirement:

- AID—35 percent U.S. participation. Of the total 3.6 million tons of cargo generated, 93,000 tons of fertilizer and 1.5 million tons of petroleum products were moved between foreign ports where U.S.-flag service was not available. If this tonnage is deducted from total AID shipments, the U.S.-flag participation would be 64 percent.
- Inter-American Development Bank—28 percent U.S.-flag participation. About 6,600 tons of fertilizer were shipped by foreign-flag vessels because U.S.-flag vessels were not available, and about 5,000 tons of cargo was shipped between foreign ports. By deducting these 11,600 tons from the total, U.S.-flag participation would amount to 62 percent.
- Bonneville Power Administration—42 percent U.S.-flag participation. About 2,800 tons of cargo were moved between ports where no U.S.-flag service was available. If this tonnage is deducted from the total, the U.S.-flag participation would be 67 percent.

The Agency also administers Public Resolution 17 (P.R. 17) which requires all Export-Import Bank-generated cargoes to be shipped on U.S.-flag vessels, unless a waiver is granted by MarAd.

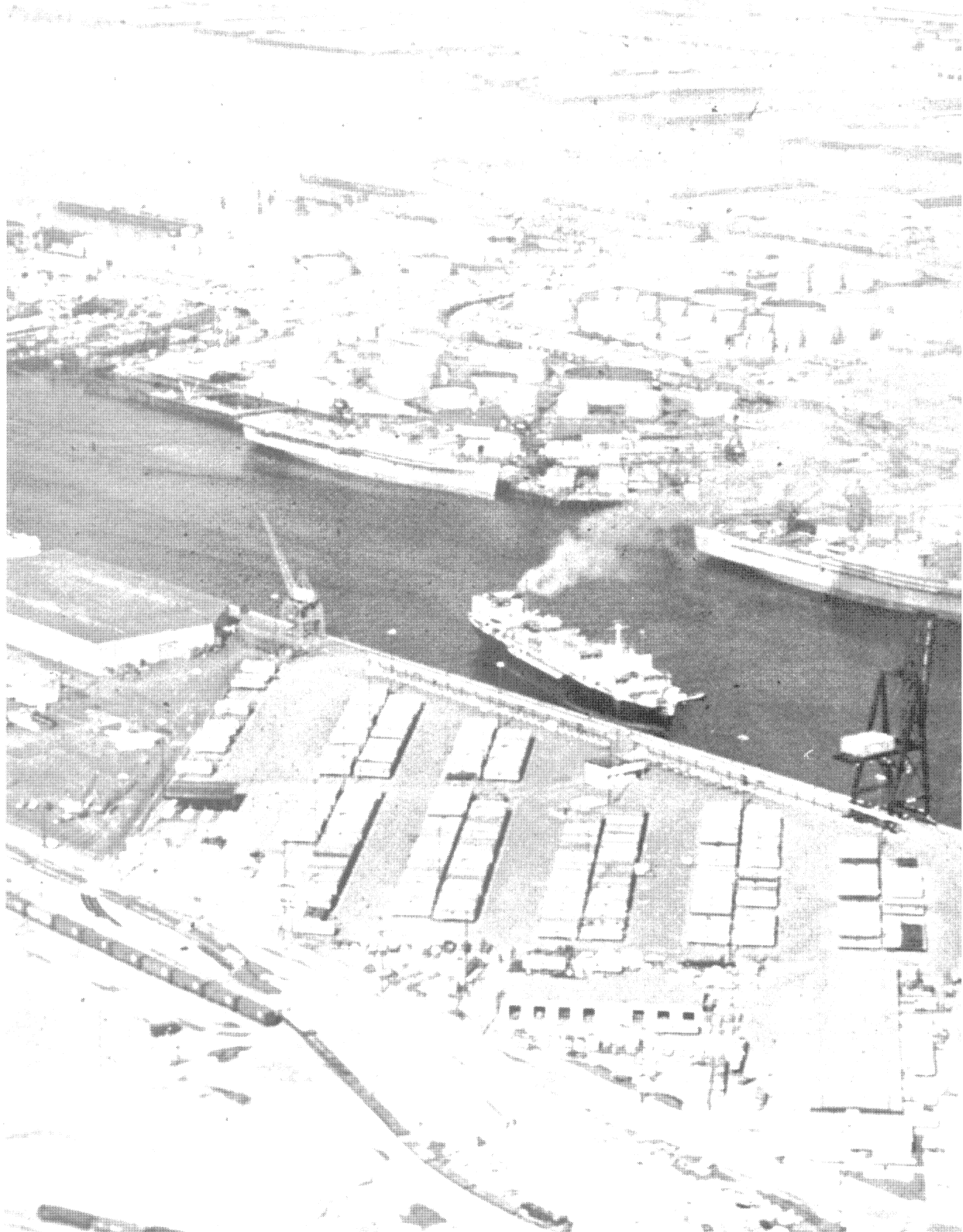
Waivers are of two types: (1) statutory waivers are permitted when U.S. vessels are not available at reasonable rates and schedules; and (2) general waivers are granted to permit recipient nations to ship up to 50 percent of ocean cargoes on vessels of their national flag if they do not discriminate against U.S.-flag shipping.

The Bank's Cooperative Financing Facility Program, which ties together Bank and private financing, has brought the privately financed portion of the transactions under P.R. 17 requirements and further increased the preference cargoes available to U.S.-flag ships. In calendar year 1974 the Export-Import Bank generated more than \$192 million in freight revenue. Due to P.R. 17 and the Bank's Cooperative Financing Program, U.S.-flag carriers received 81 percent of the freight revenues.



*An American-flag vessel loads grain under the "Food for Peace" program.*





# Port and Intermodal Development

Rapid and economical movement of the Nation's commerce is dependent upon efficient marine terminal operations at U.S. coastal, Great Lakes, and inland ports, along with effective methods of transferring cargo between marine and other modes of transport. The Maritime Administration encourages and supplements the modernization and development efforts of the American port industry, and fosters intermodal transportation through various technical assistance and promotional programs.

Because of the close interrelationship of ports and intermodal systems, MarAd reorganized and consolidated the activities of its former Division of Ports and Division of Intermodal Systems into a new Office of Port and Intermodal Development during fiscal year 1975.

MarAd also serves as a clearinghouse for port and intermodal data, collecting, analyzing, and disseminating pertinent statistics to shippers, port authorities, and other private and Government organizations.

## Port Development

Pursuant to its statutory responsibilities, the Agency has undertaken extensive efforts to analyze and rationalize the development plans of American ports. MarAd encourages the participation of individual ports in regional planning programs.

## Technical Assistance

MarAd acts as technical consultant on port projects to the U.S. Department of Commerce's Economic Development Administration (EDA). Since 1965 EDA grants and loans for port-related public works have totaled over \$130 million.

*The Port of Seattle, along with 16 other Washington ports and Portland, Ore., participated with MarAd in a regional study to develop a sound planning base on which future policy decisions may be made on the development and use of public port facilities in the State of Washington and Portland, Ore.*

During 1975 comprehensive evaluations of public works for the ports of Paducah, Ky., and Panama City, Fla., were prepared at EDA's request.

MarAd continued to serve during the year as technical consultant to the National Oceanic and Atmospheric Administration (NOAA) on port matters. To insure the industry's interests are properly considered in coastal zone management programs, the Agency acts as technical assistant for the port and navigation development portions of state coastal zone management programs.

As part of the Agency's Port Emergency Preparedness Program, which is aimed at effective control and efficient operation of U.S. seaports during a national emergency, an inventory of the Nation's port facilities and cargo handling capabilities was completed. This data is being computerized in a Port and Facility Information System (PAFIS). The information will be updated periodically and will be useful in port planning and emergency operations.

In order to take full advantage of the information included in PAFIS, a design study has been undertaken which will provide MarAd with a computer-assisted system to assign individual vessels to specific piers and wharves during a national emergency. This system, the Emergency Berth Utilization Reporting System, will also provide for rapid exchange of information and communications between local ports and MarAd headquarters as well as the emergency headquarters of other Federal agencies.

MarAd also assists U.S. ports in the development of adequate facilities to receive and dispose of vessel oily water wastes to insure that they comply with the Water Quality Improvement Act of 1972 and the Federal Water Pollution Control Act Amendments of 1972. During the fiscal year the sixth volume of a study on *Port Collection and Separation Facilities for Oily Wastes* was released. This volume considers the impact of the construction of offshore deepwater oil terminals on their contiguous ports.

A related project being conducted in the Western Region is a study to determine the relative impact of marine and non-marine industry activities on water quality in a public multi-port and harbor complex. The Region also provided advisory services to the State of California's Department of Transportation on the formulation of a transportation plan for the State.

An important MarAd port research program is the Marine Fire Protection Project. In December 1974 MarAd awarded a contract to the Washington State Coordinating Council for Occupational Education to develop a marine fire

protection system. The jointly funded contract will develop pre-fire plans for shipboard and marine fire training for local municipal fire fighters. Fifty pre-fire plans for vessels of different configurations were in various stages of completion. The results of the program will be released at a national seminar scheduled for June 1976 in Seattle, Wash.

A problem of increasing significance facing American ports and other interests requiring navigable waterways is the delays encountered in obtaining permits to dredge and dispose of dredged materials. MarAd's Western Region joined with the San Francisco Bay Conservation and Development Commission, a California State regional body, in a study of dredging regulations. The coordination of permit processing and the analysis of regulatory procedures will provide a unique opportunity to formulate a national model for needed improvements.

MarAd entered into a cost-shared contract with the East-West Gateway Coordinating Council of St. Louis, Mo., to investigate the effects of river level fluctuations on the operation of inland waterway docks and port facilities. The study is using the Port of Metropolitan St. Louis as a national prototype in the development of a guide for all inland waterway ports which will identify problems and determine practical solutions to minimize the adverse effects of river level variations on dock operations. Data collected in the study will also be available to the metropolitan St. Louis area for future port development plans.

MarAd's Western and Central Regions sponsored conferences on the Agency's role in port development. During these conferences Region personnel explained the diverse services available to ports from the Agency. Port Directors and key members of their staffs also presented various problems which they felt could be resolved with MarAd assistance.

A number of foreign countries have requested that the United States provide teams of U.S. marine/port advisors to survey foreign port conditions and make recommendations for improvements in physical facilities and management operations. MarAd participated on two of these foreign port survey teams during the year, one in Saudi Arabia and another in Iran.

Under the U.S./U.S.S.R. Agreement on Cooperation in Transportation, MarAd organized and led a team of Government and industry representatives in an exchange visit to Soviet ports on the Black and Baltic Seas. Cooperative projects involving the exchange of technical information and future training visits were agreed upon and implementing actions were initiated by both nations.

As a participating member of the Permanent Technical Committee on Ports of the Organization of American States (OAS) and its Subcommittee on Port Operations and Cargo Handling, the Maritime Administration, in conjunction with other Federal agencies, developed the national position for the U.S. delegation to the Fourth Inter-American Port and Harbor Conference which was held in Mexico City in October 1975.

MarAd's Central Region conducted a conference in conjunction with the U.S. Customs Service to acquaint New Orleans shipping interests with the new Customs procedures at U.S. ports. Participants were given an opportunity to make recommendations and voice objections. Because of the success of this conference, another has been scheduled for the Port of Houston in fiscal year 1976.

### Port Planning

In a cooperative venture with the Washington (State) Public Ports Association and the Port of Portland, Ore., a cost-shared regional port planning study aimed at evaluating and rationalizing port facilities and investments necessary to meet projected requirements was completed during the fiscal year. This study represents the first such comprehensive analysis of requirements and capabilities ever accomplished cooperatively by a large group of competing U.S. ports. As a pioneering approach to cooperative port planning on a regional basis, the study forecasts terminal requirements for the next 25 years, evaluating what is needed to adequately serve the waterborne trade of the Pacific Northwest which is expanding because of changing vessel and cargo handling technology.

MarAd also joined with the Northern California Ports and Terminal Bureau (NORCAL) in the first phase of a similar cost-shared cooperative planning study of the ports in the San Francisco Bay Area. This effort is designed to optimize the development and utilization of competing port facilities with a minimum expenditure of public funds. The results of this study will be incorporated in an overall transportation plan for the State of California.

Several ports of the country have requested MarAd participation in similar

regional cooperative planning efforts and Agency assistance to them was under active consideration at the close of the fiscal year.

### Port Promotion

By acting as liaison between American ports and the many Federal agencies whose policies impact upon port operations and development, MarAd assists in improving the working relationship between the Government and the U.S. port industry.

As part of the marketing assistance made available to American ports by MarAd, an integrated computer bank consisting of vessel movements, commodity flows, and facilities data has been created to develop a national statistics capability. The data bank assists both Government and industry by providing specific information needed for transport planning and management decision-making.

In addition to port-oriented foreign trade reports available on a semi-annual basis, two new reports were developed during fiscal year 1975. The *Vessel Entrance and Clearance Report* summarizes vessel directional flows by type of service for principal U.S. ports and enables users to analyze traffic by flag of registry. The *U.S. Port Container Cargo Report* provides details on the containerized cargo tonnage and number of containers handled by ports. In addition to allowing users to make an analysis by port range and coast for each of these topical categories, the report shows the percentage of general cargo moving by containers.

### Equipment and Facilities

To help meet expanding demands upon the Nation's ports, the Agency evaluated the equipment and facilities re-

quired for bulk and neobulk service.

During the fiscal year a computer simulation program was developed to assist Federal planners and private operators in coordinating movements and improving terminal productivity for bulk shipments. The initial effort was directed toward grain exports from U.S. Gulf Coast ports. This program should help avoid congestion and related problems which have occurred in the past under the stress of heavy foreign purchasing programs and national emergencies. The program will be expanded to include petroleum and other bulk products and cover all seacoasts and the Great Lakes.

MarAd continued to support the American National Standards Institute in developing technical standards for both freight containers and shipborne barges, in addition to standards for package sizes and unit-load dimensions. The Agency developed the U.S. shipborne barge program and a proposed standard covering the dimensions of LASH and Seabee barges.

To protect the large capital investments of American operators in intermodal equipment, the Agency also continued to represent U.S. interests at all international standards meetings.

The *Inventory of American Intermodal Equipment*, published annually by MarAd, reflected a 23.7 percent increase in U.S. container capacity totaling 679,222 twenty-foot equivalent units (TEU's) in calendar year 1974. The pamphlet provides Government and industry with information on current U.S. intermodal equipment by types, sizes, and capacities.

A contract examining sharing of specialized container equipment by U.S.-flag containership operators was completed, and a similar examination of refrigerated container sharing was under consideration.

Recognizing that efficient rail/marine interface increases the effectiveness of an intermodal system, MarAd submitted comments and recommendations on the report of the Preliminary System Plan for the reorganization of the Midwest-Northeast Rail Region.

Hearings before the Interstate Commerce Commission were completed during the fiscal year on the complaint filed by MarAd (ICC 35831) against certain rail carriers in the Southern Freight Association. The complaint was filed as a result of certain rail operators allegedly cancelling interchange agreements with containership operators. The parties to the docket have filed their briefs in the case and are awaiting the Commission's decision.

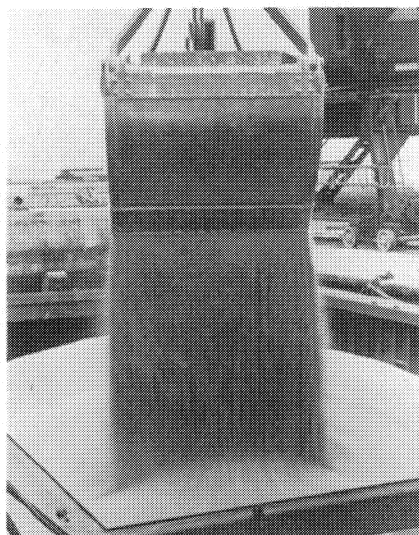
The Agency held several meetings with U.S. bargeship operators to assist them in developing a joint program to overcome impediments to the adoption of the bargeship concept, and to establish priorities for future solutions to common operating problems. The terminal problems associated with barge-carrying ships have been analyzed in preparation for a bargeship operator conference to be held on the West Coast in fiscal year 1976.

In cooperation with the National Bureau of Standards, MarAd continued developing design criteria for port structures to enable them to withstand extreme winds. This continuing project has been incorporated with similar research efforts supported by the Agency for International Development and the General Services Administration. Proposals for further extending the scope of the project were under consideration at the end of the fiscal year.

The Agency represented the Department of Commerce on the Inter-Agency Committee for Transportation to combat theft-related losses of cargo in transit. Through membership in the Northwest Cargo Security Committee, the Western Region worked closely with the Departments of Transportation and Justice, local law enforcement officials, operators of all modes of transportation, insurance companies, and port authorities to develop a system for monitoring cargo losses.

MarAd participated in meetings of intermodal working groups of the United Nation's Regional Economic Commissions and the Intergovernmental Maritime Consultative Organization (IMCO). These meetings are held to resolve problems relating to shipborne barges and containers and to assure reciprocal rights to U.S. bargeship and container operators.

In an effort to extend the wave conditions under which barges can be safely discharged from LASH vessels, MarAd joined with the Navy Department, the National Oceanic and Atmospheric Administration, the U.S. Army Corps of Engineers, and the States of California and Washington in funding the development of a prototype Tethered Front Breakwater. From this effort MarAd anticipates the development of new mar-



*The flexibility of LASH barges allows operators to load them with all types of cargo including bulk commodities.*



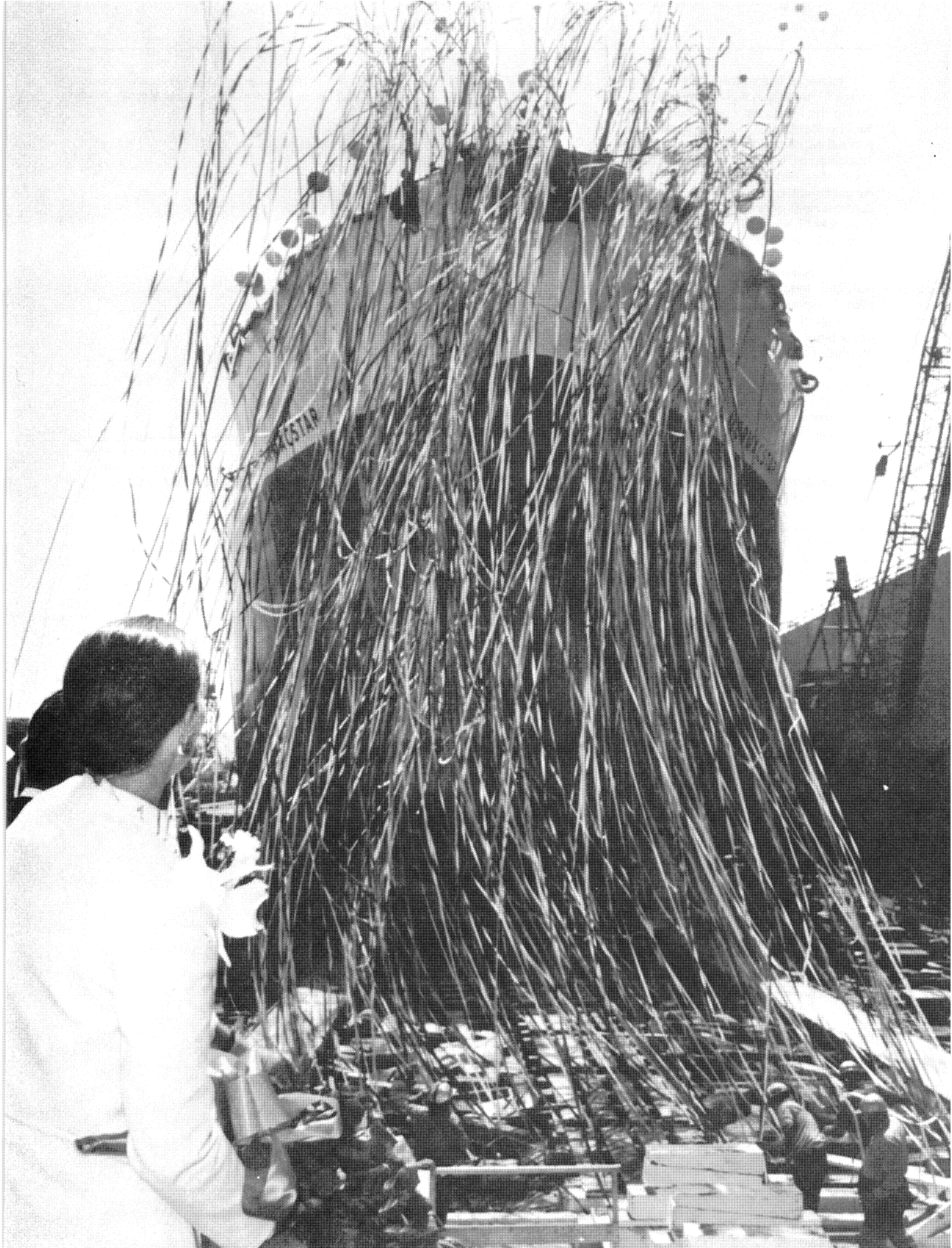
*Innovative container developments, such as this temperature-controlled hanging-meat container, improve the competitiveness of American container operators.*

lists U.S. registered shipborne barges. Such an official list will expedite the entrance and clearance of shipborne barges to and from U.S. ports. It also should facilitate the interchange of barges between international carriers. Following the conference a technical advisory group was formed which developed the American position on standardization for shipborne barges.

kets for the LASH systems at ports where wave conditions are now an inhibiting factor.

An international conference, held in New Orleans, brought together representatives of the governments of Great Britain, The Netherlands, the Federal Republic of Germany, and the United States, with representatives of most of the barge-carrying lines. Discussion centered on regulatory constraints to the growth of barge systems. As a result of the conference, MarAd will publish a booklet which





# Research and Development

Under the Merchant Marine Act of 1970 the Maritime Administration's research and development (R&D) program has been expanded and redirected toward areas promising high potential benefits in the near future and projects which are more responsive to industry needs. The program aims to meet the national goal of rejuvenating the American merchant marine while, at the same time, reducing the need for subsidy payments to shipyards and ship operators.

MarAd has successfully encouraged the industry to expand its participation in the R&D program. This has insured practical application of innovations by American-flag shipping operators. Increased industry cost-sharing in research projects attests to the industry's willingness to help develop and apply advanced technology to improve its productivity and competitiveness.

During fiscal year 1975 the Maritime Administration committed more than \$22 million to R&D activities. Cost-sharing of various contracts by the maritime industry and other Government agencies added an additional \$11.4 million to the program.

Appendix XVI provides a list of significant R&D contracts awarded by MarAd during the fiscal year.

The thrust of MarAd's research effort is in the areas of ship development and ship operations, supported by programs in basic maritime technology and research conducted at the National Maritime Research Center (NMRC) at Kings Point, N.Y.

During fiscal year 1975 the NMRC at Galveston, Tex., was phased out due to budget limitations. However, extensive research into ship operations and human factors continued at NMRC, Kings Point.

## Shipbuilding

MarAd launched its shipbuilding research program in 1971 and placed new emphasis on restoring the American shipbuilding industry to a competitive position in the world market. With the cooperation of professional societies and various shipbuilding experts, MarAd developed a research program to improve the industry's productivity. It is closely coordinated with the shipyards and encompasses all major facets of the construction process.

The program is directed toward upgrading shipyard facilities and capital equipment; developing technical data, management aids, and industrial standards to improve production techniques; adopting advanced computer and manufacturing technology to automate the ship construction process; and conducting employee motivational studies to improve manpower utilization.

Welding accounts for approximately 20 percent of shipbuilding costs. During the fiscal year several projects were initiated to improve existing welding methods and equipment. These projects include manual, automatic, and semi-automatic welding processes, and the use of lasers in welding.

An improved vertical butt welder, which welds the sides of a ship three to five times faster than conventional equipment, was developed. A horizontal butt welding machine also is being developed.

Another costly process improved under the R&D program is the connection of shipboard electrical cables. Numerous electrical cables must pass through a number of watertight bulkheads. An improved stuffing box developed during fiscal year 1975 will simplify the sealing of these cable penetrations.

The Agency's R&D program also demonstrated to the satisfaction of several regulatory agencies that a method used by the mining industry to connect lengths of cable could be safely applied to marine use.

In the area of automation, a sophisticated computer program, PRELIKON, was completed to assist builders with a ship's preliminary design. It was successfully tested during the fiscal year, and will join AUTOKON—a computer-aided manufacturing system already being used by U.S. shipyards—in speeding the design and construction process.

Research underway since 1972 has resulted in the completion of a standard series of powering and maneuvering data for high block-coefficient hull forms common to tankers and bulk carriers. These data are now in use by many ship-

yards and enable naval architects to predict the powering and maneuvering characteristics of a ship during the early design stages without expensive model tests.

Determining the exact wave heights and configurations that a ship could encounter is important to the ship design process, but precise data on waves are difficult to obtain because the measuring ship itself moves up and down. A subsea mountain in the North Pacific rising within 200 feet of the ocean surface has provided an ideal fixed location for wave measuring equipment. The Cobb Seamount, as this mountain is called, is being used by MarAd, in conjunction with conventional measuring ships, to collect and expand data on wave heights.

## Ship Machinery

This program endeavors to increase the options available to ship operators in the selection of machinery systems by developing more reliable, yet less expensive, hardware. Areas of research center on propulsion machinery, transmission systems, and auxiliary equipment.

A five-year project to adapt industrial gas turbines to ship propulsion was successfully concluded during fiscal year 1975. A gas turbine engine was developed that burns low grade "Bunker C" fuel oil, reverses direction internally, and operates for long periods of time with little maintenance. By the end of the fiscal year several U.S.-flag vessels in operation or on order were using or would incorporate some of the technology developed during this project.

In the industrial gas turbine project the concept of recoupment was introduced into the Agency's R&D program. The contractor who adapted the turbine signed a recoupment agreement with MarAd whereby the Government will recover part of its developmental costs from the sale of the technology or the resultant hardware. Over the two-year period of the agreement the U.S. Government potentially can recover between \$250,000 and \$750,000.

Auxiliary machinery being developed includes a closed-cycle gas turbine to refrigerate and re-liquefy escaping gases on LNG ships and a device (called Destator) to neutralize the static charges that build up in supertankers during tank cleaning operations. The turbine was still in the exploratory stage at the end of the fiscal year, while the Destator had been developed and was being tested aboard a large tanker.

Propeller research underway is investigating the phenomenon of cavitation erosion. Design techniques being

*The MORMACSTAR, launched in May 1975, will be the first commercially owned U.S.-flag vessel equipped with a MarAd-sponsored experimental, automated satellite navigation and communications system.*





developed will predict the susceptibility to cavitation so that the proportions of the propeller can be modified to eliminate it. Research also continued on the use of highly skewed propellers to reduce ship vibrations. One such propeller, tested on the ore/bulk/oil carrier ULTRASEA, has proven effective. Plans called for the installation and testing of another highly skewed propeller aboard the container-ship SS DEFIANCE to validate the effectiveness of the propeller on a different ship type.

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## Ship Operations

Ship operations research endeavors to increase the productivity of American-flag shipping companies and reduce their dependence on Government subsidies. Emphasis is placed on improved ship management systems, better cargo-handling equipment, automated ship control, and advanced communications and navigation systems.

*Shipyard workers using a vertical butt welder, developed under MarAd's R&D program, to weld together the massive steel plates of a vessel's hull.*

## CAORF

Construction of a Computer-Aided Operations Research Facility (CAORF) neared completion at the NMRC, Kings Point, N.Y. CAORF is scheduled to become operational in fiscal year 1976.

The facility will be used to investigate vessel operational problems, and to evaluate innovations in hardware concepts. Highly sophisticated, computerized equipment will simulate a wide range of ship operations using various bridge layouts, ship design characteristics, port and terminal configurations and environmental and traffic situations. Expensive at-sea testing of new developments will thus be bypassed.

## SOIS

The Shipping Operations Information System (SOIS) is a computer-based management control system designed to improve the day-to-day operations of U.S.-flag ocean carriers.

Jointly sponsored and funded by industry and Government, this system will provide timely, interactive data entry, analysis and retrieval, covering such major operations as cargo space documentation, intermodal distribution coordination, fleet resource management, and maritime industry reporting.

The system is composed of numerous modules which can be implemented separately or as a total package. Fifteen American-flag operators are participating in the program.

During fiscal year 1975 MarAd and five U.S.-flag shipping companies jointly initiated SOIS projects to develop a booking and billing system, an on-line equipment control capability, a voyage analysis and planning model, and further refinements to the cost information reporting module.

Also during the fiscal period a marine terminal control system was designed and installed at the Howland Hook Terminal at Staten Island, N.Y. Following initial tests the system was to be operational by the end of calendar year 1975.

Future projects evolving as a result of present SOIS projects may include an international data communications system, a market forecasting and analysis model, and an optimum fleet scheduling system.

The results of the various SOIS projects will be made available to all U.S.-flag ocean carriers to assist them in reducing shoreside costs and documentation expenses, increasing fleet productivity, and providing more efficient services to exporters and importers.

## Cargo Handling

Emphasis on the development of more productive cargo handling and control systems was highlighted by the test and evaluation of the "SuperCell" concept. A joint effort of the Maritime Ad-

ministration and Matson Navigation Co., "SuperCell" allows the lift of six empty containers on or off a vessel at one time. Testing of the concept aboard the SS HAWAIIAN PROGRESS indicated that significant savings in both labor and vessel time could be achieved. It will be particularly useful in a trade that has many empties moving in one direction. The initial results of this work have been provided to other U.S.-flag operators for their evaluation.

Several projects in support of U.S.-flag LASH and Seabee operations were undertaken. A portable automobile platform for LASH vessels was developed in conjunction with two American-flag lines and the initial prototype unit was undergoing in-service testing at the close of the fiscal year.

## Ship Control

Programs in this area apply electronic technology to shipboard controls associated with navigation, communications, machinery operations, ship maneuvering, cargo management, and ship administration in order to improve vessel safety and reliability and reduce costs.

During 1975 a systems analysis was completed that will provide the basis for the design of an integrated system of ship control. In the future a ship will be outfitted with an automation package which combines the technology from a number of separate modules developed under the Agency's R&D program.

Several of the individual systems were either under development or evaluation at the close of the fiscal year. An integrated conning system was undergoing tests on board the SS EXPORT FREEDOM. Concurrently, an integrated steering system was being developed for use in conjunction with the conning system. An anti-stranding sonar system, developed to prevent vessel groundings, was being tested on board the SS DELTA NORTE.

A computer-based machinery performance monitoring system (VIDEC), installed aboard the SS PRESIDENT JOHNSON, was also being evaluated at the end of the year. Preliminary design was completed on a prototype Hull Surveillance and Monitoring System which will be fabricated and installed for test and evaluation on the SS AMERICAN LANCER.

## Navigation/Communications

The Maritime Administration is the world's leader in the application of space

technology to marine communications, having initiated feasibility studies in this area as far back as 1968. Through the use of existing technology developed by the National Aeronautics and Space Administration (NASA), MarAd is testing space satellites to improve the efficiency and dependability of communications between a ship at sea and its owner or operator ashore. Other potential benefits include improved ship navigation and control, as well as more efficient fleet management procedures for the shipping industry.

During fiscal year 1975 experimental operations were conducted with the SS AMERICAN ACE and the SS LASH ATLANTICO, utilizing NASA's ATS-5 and ATS-6 satellites. Operational-band frequencies were used for the first time, and communications methods tested included telephone, facsimile, and data transmissions. Navigation data were also collected and evaluated. These tests have provided a technical basis for the design of operational systems.

The satellite antenna, other shore-side hardware, and the control center for the system are located at the Maritime Coordination Center (MCC), NMRC-Kings Point, N.Y. The MCC provides communications services to the shipping industry and processes and stores data essential to maritime satellite activities.

Satellite communications have developed to the point that a commercial service (MARISAT) is available. By using two satellites to cover both the Atlantic and Pacific Oceans, MARISAT offers operators instant communication with their vessels on most of the world's trade routes. Ships will be provided current weather and routing information, chart corrections, and administrative and technical assistance.

Testing of the Digital Selective Calling System (SELCALL) continued during the year. This is a non-satellite communications system which will provide rapid, economical and reliable communications services for older U.S. vessels not equipped with satellite communications hardware. SELCALL enables a ship operator to contact a vessel at any time using high-frequency radio bands, the primary bands used by merchant ships. An effective error-control technique, coupled with a high-frequency teleprinter and SELCALL, was successfully tested during the fiscal period. MarAd and the U.S. shipping industry are endeavoring to have the SELCALL method of communication adopted as an international standard.

Plans for a prototype radar transponder were developed in 1975 and equipment design is scheduled to begin in 1976. This system, designed to provide



ships with a collision-avoidance capability, will identify radar targets and enable target detection under poor conditions.

Satellite-based navigation systems were evaluated, and the results were made available to American shipping companies. MarAd also arranged to participate in the Department of Defense NAVSTAR satellite navigation system to insure its evaluation for commercial maritime use.

An automated prototype VHF-FM telecommunications system was installed at six Great Lakes coastal stations. Acceptance tests were successful and evaluation by about one-half of the U.S. Great Lakes bulk carrier fleet was underway at the end of the year.

A prototype communications system for use on the lower Mississippi River was being designed to allow ship-to-shore communications on the inland waterways. Testing of this system was scheduled for 1976.

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## Advanced Ship Systems

The Agency's research program attempts to design specialized ship types in order to make the U.S. fleet more competitive and profitable. MarAd also investigates the economic and technical feasibility and probable market penetration of innovative ship types. By analyzing new concepts prior to any detailed development effort, their technical and economic merits are determined before large sums are spent on hardware.

### Nuclear Ships

A joint Government/industry effort to develop nuclear propulsion, which offers significant advantages over conventional power for certain high productivity ships, has been under way since 1970.

From the outset of the program existing nuclear reactor technology, largely developed for shore-based electrical power generation, has been applied to marine propulsion. Emphasis has been on determining which ship types would benefit from nuclear propulsion, developing a standardized power plant applicable to the widest variety of ship types, and resolving the administrative issues surrounding maritime applications of nuclear power.

Since the development of a standardized nuclear propulsion system has been largely completed, emphasis of the Agency's program shifted to securing the necessary regulatory approvals, develop-

ing internationally acceptable design criteria, and formulating procedures for insurance, indemnification, and port entry.

MarAd initiatives led to the formation of an *Ad Hoc* Working Group on nuclear ship safety under the Organization of Economic Cooperation and Development. The Working Group has proposed a code of nuclear ship practices to the Intergovernmental Maritime Consultative Organization for its consideration. MarAd is playing a major role in the Group's efforts to formulate international standards for nuclear ships.

During 1975 a contract was awarded to an American shipyard to perform initial engineering tasks for a nuclear-powered merchant ship. Work performed under this project is expected to solve design-related problems raised by the Nuclear Regulatory Commission in its 1974 evaluation of MarAd's standardized nuclear propulsion system. The shipyard will design collision resistant structures and develop preliminary ship specifications, quality assurance requirements, construction schedules, and cost estimates.

The issue of financial protection in nuclear merchant ship operations was also investigated during the year. A completed study discusses and defines a set of criteria to provide financial protection to the public against losses which might be sustained as a result of mishaps involving nuclear merchant ships and to protect the builders and operators of nuclear ships against ruinous liability for losses.

### Other Types

In addition to the nuclear ship project, MarAd is investigating several other innovative ship systems.

During the year a study was completed on the technology and economics of large shallow-draft (LSD) tankers to serve shallow ports of the United States. The study found that LSD vessels are both technically and economically viable because their design and construction requires no new technology, sufficient demand for the commodities they carry exists, ship costs and required freight rates are competitive, and such vessels could compete without ODS. The most promising LSD vessel designs were as follows:

- (1) 90,000 dwt. LSD dry bulk carriers for 40-foot drafts;
- (2) 95,000 dwt. LSD tankers for 40-foot drafts which would be used for short hauls between offshore terminals and coastal ports; and
- (3) 165,000 dwt. LSD tankers for 50-foot drafts for oceangoing service.

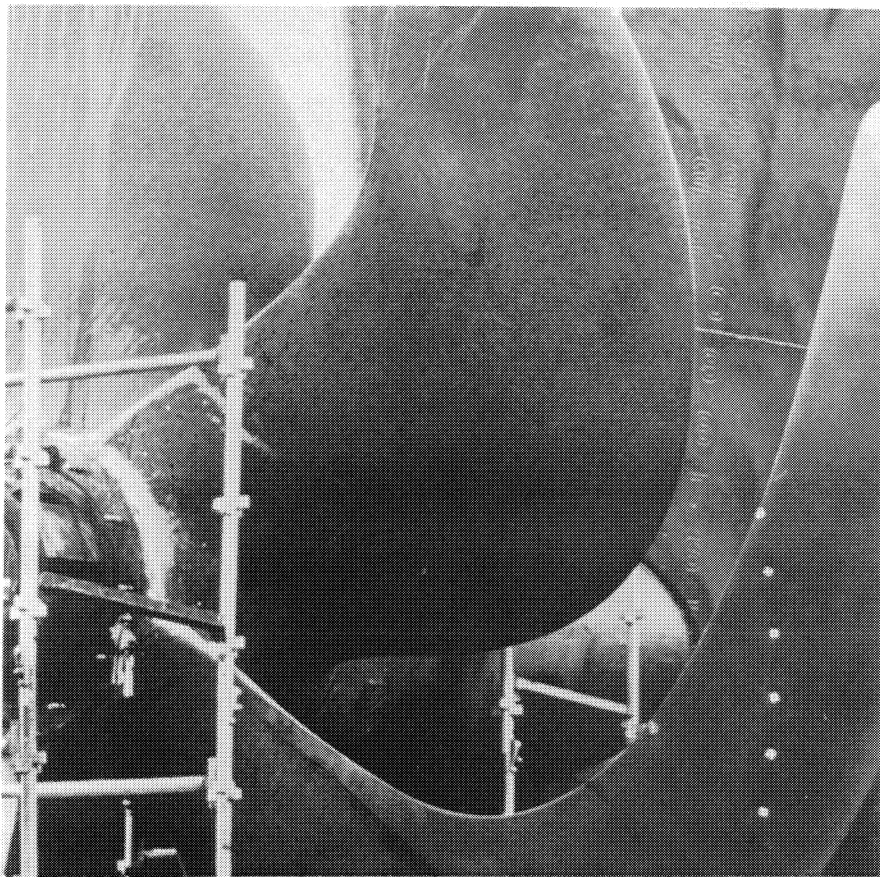
The report also indicates that five U.S. shipyards are capable of building 95,000 ton LSD tankers, but only three yards could build a 165,000 ton LSD. Because of current cost differentials between U.S. and foreign-built bulk carriers, either CDS or a U.S.-flag cargo preference system appears to be prerequisite to significant U.S. penetration in the LSD vessel market. The study also found that under favorable conditions the 90,000 dwt. LSD dry bulk carrier could become the work horse of the dry bulk trades.

The report concluded that, where draft considerations are not significant, existing vessel designs are more economic, although investment in LSD vessels would not pose financial risks. Where significant draft constraints exist—as is the case in most major U.S. ports—the use of shallow-draft technology becomes economically preferable to current designs.

Another study examined the possibility of submarine tankers transporting petroleum products from Arctic oil fields and concluded that such vessels are technically and operationally feasible.

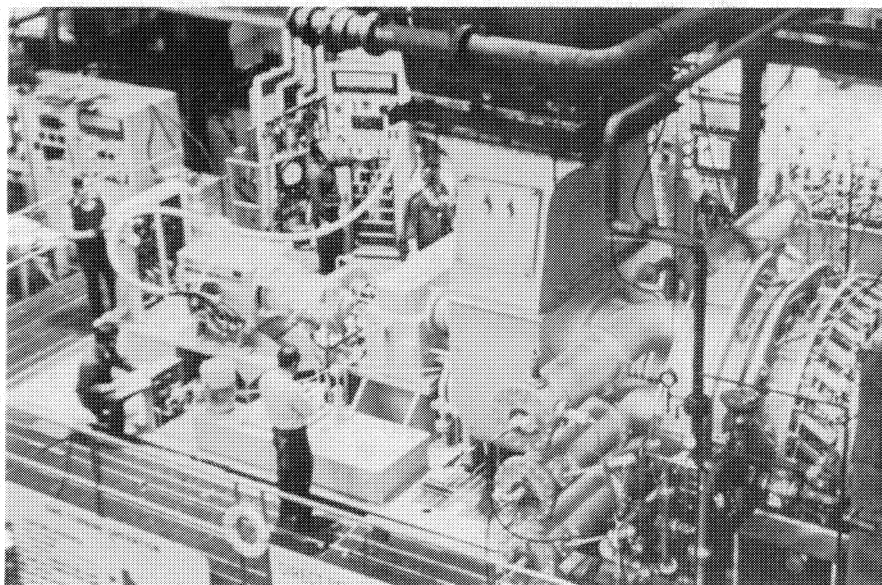
A *Neobulk Shipping Study* released during the fiscal year concluded that with an aggressive marketing program some 14 to 18 percent of the neobulk tonnage moving in U.S. foreign trade could be captured by U.S.-flag ships by 1982. Neobulk cargo includes agricultural and forest products, iron, steel, non-ferrous metals, rubber, chemicals, textiles, and automobiles. Although ship systems for neobulk service should be designed to handle a specific commodity with maximum efficiency, they should also be capable of transporting other commodities moving in the overall tramp market with only a slight decrease in efficiency. In addition, the study recommended that the size and speed of neobulk vessels should fill the requirements of the specific group of shippers they will serve.

Prompted by world developments affecting energy availability, rising fuel costs, and environmental concerns, MarAd awarded a contract in 1974 to evaluate the feasibility of using wind-driven vessels in U.S. foreign commerce. The study, published in fiscal year 1975, compared three sailing ships (15,000, 30,000, and 45,000 dwt. bulk carriers) with conventionally powered vessels of



MarAd is testing a highly skewed propeller, such as this one, to reduce ship vibrations.

MarAd's R&D program led to the successful adaptation of an industrial gas turbine to marine uses. Several U.S. operators have already installed the "marinized" gas turbines aboard their vessels.



the same size. Commercial sailing ships are technically feasible according to the study, but their optimum size, 50,000 dwt., is well below that of conventional bulk vessels.

Operationally, the random nature of a commercial sailing ship's arrival time at a specific port, due to the unpredictability of the wind, precludes their employment in trades requiring tightly scheduled

arrivals. Although this seems to make wind-driven merchant vessels best suited for the bulk or neobulk trades, fluctuations and variability in annual cargo throughput could add considerably to the cost of providing this type of service.

From an economic perspective, required freight rates for conventionally powered vessels are about 10 percent lower than those of commercial sailing ships, except for the smallest sailing ship operating over the longest route—in which case economics favors wind power. The principal conclusion drawn from this research finds conventionally powered vessels economically superior to those driven by the wind.

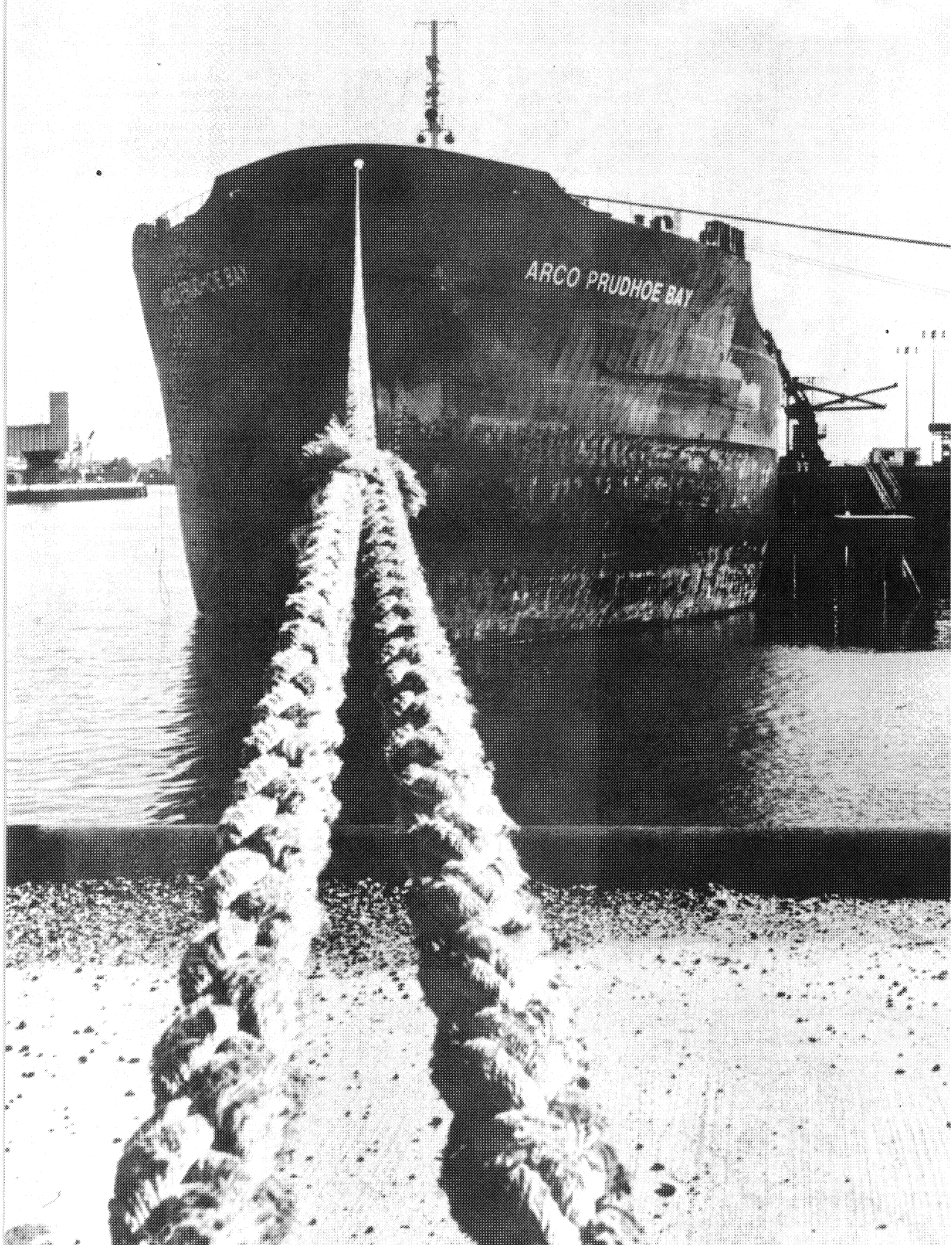
Other projects begun during the fiscal year are examining such new ship systems as industrial plant ships to extract energy from the ocean's thermal gradients, domestic barge and container feeder services, and heavy-lift vessels.

In addition to investigating specialized ship systems, broad areas of technology are surveyed to uncover promising new concepts. The *U.S. Ocean Shipping Technology Forecast and Assessment*, a study completed in fiscal year 1975, suggested the following areas for future research because of their high cost/benefit ratios: cargo handling systems, particularly for containerships and neobulk carriers, labor-saving technology for shipyards, and propulsion technology. The recommendations are being incorporated in the Agency's plans for future research.

To complement other Agency activities aimed at increased vessel utilization and fleet competitiveness, a market analysis program was established during 1975 to provide the industry with data needed to capture more cargo and to determine future commercial requirements. Economic studies were carried out to provide a better understanding of the complex relationships that exist in the marine market-place. A survey of shipper attitudes towards various service features was undertaken to determine the impact of pricing, schedule reliability, transit time, and damage frequency on selection of carriers. Historic and projected trade-flow data were being developed under the program and disseminated to operators and shipbuilders to assist them in making marketing decisions. Other studies initiated will analyze the market potential for Great Lakes/overseas trade, combination bulk-container-RO/RO services, and heavy-lift vessels.

Additional MarAd R&D projects are described in Chapters 3, 5, and 7.







# The Marine Environment and Energy Conservation

## Conferences

During the fiscal year, in cooperation with the U.S. Coast Guard and the U.S. Army Corps of Engineers, the Maritime Administration sponsored a Symposium on Marine Traffic Management. The symposium, which was attended by major U.S. maritime associations and labor and management organizations, focused on all aspects of the marine traffic system that affect the safe and efficient movement of people and goods through U.S. ports and waterways. Participants discussed such problems as hazardous cargoes, traffic density, reliability of navigation equipment, and environmental concerns.

MarAd representatives attended two sessions of IMCO's Marine Environment Protection Committee held in London, in November 1974 and June 1975. Agenda items of primary concern to the Agency included the following: provision of adequate oily waste reception facilities for ports; performance standards for oily water separating equipment and oil-content meters; procedures for discharge of noxious liquid substances; and operational requirements for vessel sewage-treatment plants.

The Agency participated in a Coast Guard/Chemical Transportation Industry Advisory Committee Task Group on liquefied petroleum and natural gas. During the year the final draft of a Liquefied Gas Carrier Code was completed and approved by IMCO's Maritime Safety Committee. The Gas Code will provide international marine safety standards for the bulk carriage of liquefied gases, both flammable as well as nonflammable, by prescribing the design and construction features of ships involved in such carriage

and the equipment required to minimize risk to the ship, its crew, and the environment.

MarAd accepted an invitation to become a member of the U.S. Technical Advisory Group for the International Standards Organization Technical Committee on Water Quality. The Agency's involvement is primarily concerned with standardization of methods used in determining the oil content of polluted sea water and the measurement of oil in bilge and oily ballast water.

Under the auspices of the U.S./U.S.S.R. Agreement on Cooperation in the Field of Environmental Protection, two meetings of the Joint Working Group on Marine Pollution from Shipping were held in fiscal year 1975. Participating U.S. agencies were MarAd, the Coast Guard, and the Environmental Protection Agency. At these meetings U.S. and Soviet representatives agreed to expand their cooperation to include the publication of joint papers, both within the framework of IMCO and in professional journals, and to exchange oil-abatement devices for evaluation purposes. Other joint projects undertaken include:

- Development of standard test procedures to evaluate the effectiveness of chemical dispersing and collecting agents for oil spills;
- Standardizing vessel technical requirements to ensure compliance with all international regulations; and
- Development of oil-content measuring instruments, procedures for discharge of light refined oils, and standard analytical methods to determine instrument accuracy.

During fiscal year 1975 the Maritime Administration released the Final Environmental Impact Statement (EIS) on the Bulk Chemical Carrier Construction Program. The statement complies with the National Environmental Policy Act of 1969.

A draft EIS on offshore oil and gas drilling vessels covered by Title XI guarantees was prepared and released for comments in May 1975. The Final Statement was published in January 1976.

Under the Marine Protection Research and Sanctuaries Act, the Secretary of Commerce is authorized to assist in and promote the coordination of research and other activities to minimize or end all ocean dumping. Incineration at sea may be a viable, environmentally safe alternative to ocean dumping as a means of

disposing of toxic chemical wastes. Accordingly, MarAd instituted the preparation of an EIS covering chemical waste incinerator ships.

During the year MarAd completed an Environmental Impact Analysis on its Nuclear Merchant Ship Program. The analysis could be used in connection with any legislation that may be introduced in the Congress for the development and construction of nuclear merchant vessels. MarAd also submitted comments on the Draft EIS for Deepwater Ports prepared by the U.S. Coast Guard.

## Construction Standards

Agency personnel continually monitor the status of the Pollution Abatement Program to insure compliance with Docket A-75. The Maritime Subsidy Board (Board) in Docket A-75 stipulated that all tanker vessels receiving CDS must comply with Section 70 of MarAd's *Standard Specifications for Merchant Ship Construction*. It was determined that all CDS vessels have either incorporated all required features into the original contract specifications or are incorporating the pollution abatement features through changes to the original contract.

During the year Section 70 of the *Standard Specifications*, which deals with pollution abatement systems and equipment, was revised as follows:

- A new standard was established for oil content meters and oil/water separators.
- Ship-to-shore connections were standardized to meet IMCO and U.S. Coast Guard requirements.
- Inert gas system requirements were established.
- Design alternatives for ship sewage treatment plants and for bilge and ballasting systems were approved.
- Recirculation was approved as an alternative to requiring automatic oil/water separator shutdown in the event of high oil content.

The Board also amended Section 94 of the *Standard Specifications* which deals with collision-avoidance systems.

MarAd submitted comments on the Coast Guard's proposed regulations relating to segregated ballast design concepts for tankers engaged in the domestic trade. During the year Agency personnel actively participated in a joint industry/Coast Guard/MarAd working group that investigated optimum placement of segregated ballast to prevent accidental oil outflow. As of June 30, 1975, the Coast Guard had not issued final regulations.

The 70,378-ton tanker ARCO PRUDHOE BAY unloading its 550,000 barrels of Alaskan oil at the Port of Long Beach.

This product tanker is departing from NASSCO shipyard and steaming toward Curacao to pick up oil for the U.S. East Coast.



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## Training

The Board's Final Opinion in Docket A-75 requires MarAd to publish clear and concise manuals relating to operations of the fuel, cargo, and waste disposal systems onboard tankers. An Editorial Control Committee, chaired by the Eastern Region Director, was established and charged with developing a manual to set standards for shipboard control and avoidance of pollution. Twenty-two representatives from management, labor, Government, and academia comprise the Committee. An initial draft of a *Shipboard Anti-Pollution Training Guide* was completed by the Committee and was under review at the end of the fiscal period.

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## R&D

The Joint MarAd/Coast Guard *Tank Barge Study* was completed during fiscal year 1975. The study evaluated the pollution avoidance effectiveness of double-hulled tank barges and assessed the economic impact on the industry of a double hull requirement. The results indicate that double-hulled tank barges are significantly more effective in preventing oil spills than their single-skin counterparts and that new construction costs for double-wall tank barges are not significantly more expensive than for single-skin barges. However, the study concluded that the cost of retrofitting existing single-skin barges to a double-wall configuration would be prohibitive.

Another joint MarAd/Coast Guard project in this area is a three-phase study of interim repairs to tank barges. In Phases I and II, a binder of detailed information on 72 repair materials was compiled and test procedures were developed to determine the ability of various interim repairs to withstand operational and climatic strains. The third phase of the project, which entails laboratory and field testing of various repair processes, was under way.

Design concepts are being developed for three VLCCs that incorporate safety and pollution abatement features. One design will be without double bottoms, one with double bottoms, and the third with double bottoms and double hull wing tanks. The final report will summarize advantages and disadvantages of each design concept as regards construction, operation, and maintenance costs.

Prototype sewage treatment systems were tested aboard two Great Lakes ore carriers during the fiscal term. Analysis indicates that biological systems are not very practical for use aboard ship due to "upsets" from disinfectants used in cleaning the lavatories. A marine sewage treatment system utilizing ozone as a disinfectant was developed and successfully tested in a laboratory. Shipboard testing of the ozone system is scheduled for fiscal year 1976.

Another research project is investigating the cause of tanker explosions. The results will be used to optimize the design of cargo tank ventilating, inerting, and washing systems and to develop procedures for the most efficient, safe, and economical operation of current and future systems.

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## Energy Conservation

Recognizing the adverse economic impact that higher fuel costs have had on the maritime industry, MarAd initiated a wide-ranging program to encourage continuing productivity gains and to develop energy-saving measures for all segments of the industry. A senior level Energy Policy Panel and an Energy Program Working Group were organized to monitor fuel consumption and to develop an "energy blueprint" for the maritime industry. To insure that Agency conservation efforts do not disrupt domestic or foreign waterborne commerce, representatives from 11 maritime trade associations serve as an advisory group.

The established target goal calls for the maritime industry to reduce energy consumption between 1975 and 1985 by a total of 10 percent over 1972 energy usage while maintaining a high level of productivity. An energy reporting system will be created that will permit quantitative evaluation of energy use per unit of productivity. Plans call for a research contract to be awarded during fiscal year 1976 to develop standard measures of energy consumption so that the effectiveness of conservation activities implemented by the industry may be evaluated.

During the year posters and pamphlets were distributed to U.S.-flag domestic and foreign trade shipping companies, shipbuilding and repair yards, and port and terminal operators to graphically emphasize that energy conservation is "a necessity today to ensure tomorrow."

In cooperation with the Federal Executive Board, regional meetings were held to keep industry officials abreast of Government energy activities. MarAd's region offices have initiated a door-to-door approach to insure that all maritime companies have launched conservation

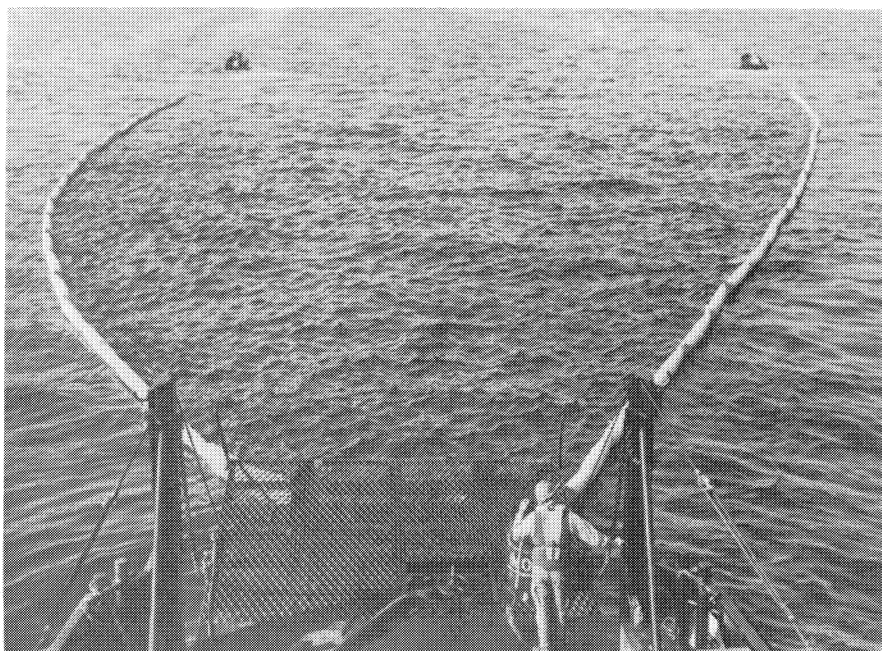
programs tailored to their specific requirements.

At the May 1975 seminar on Maritime Fuel Conservation, sponsored by the Webb Institute of Naval Architecture, MarAd briefed approximately 70 industry representatives on the Agency's short and long-term approaches to energy conservation. Discussion centered on such topics as price and availability of marine fuels, reduced power operations, rationalization of shipping, the economics of water transportation, heavy weather avoidance, and alternative power sources.

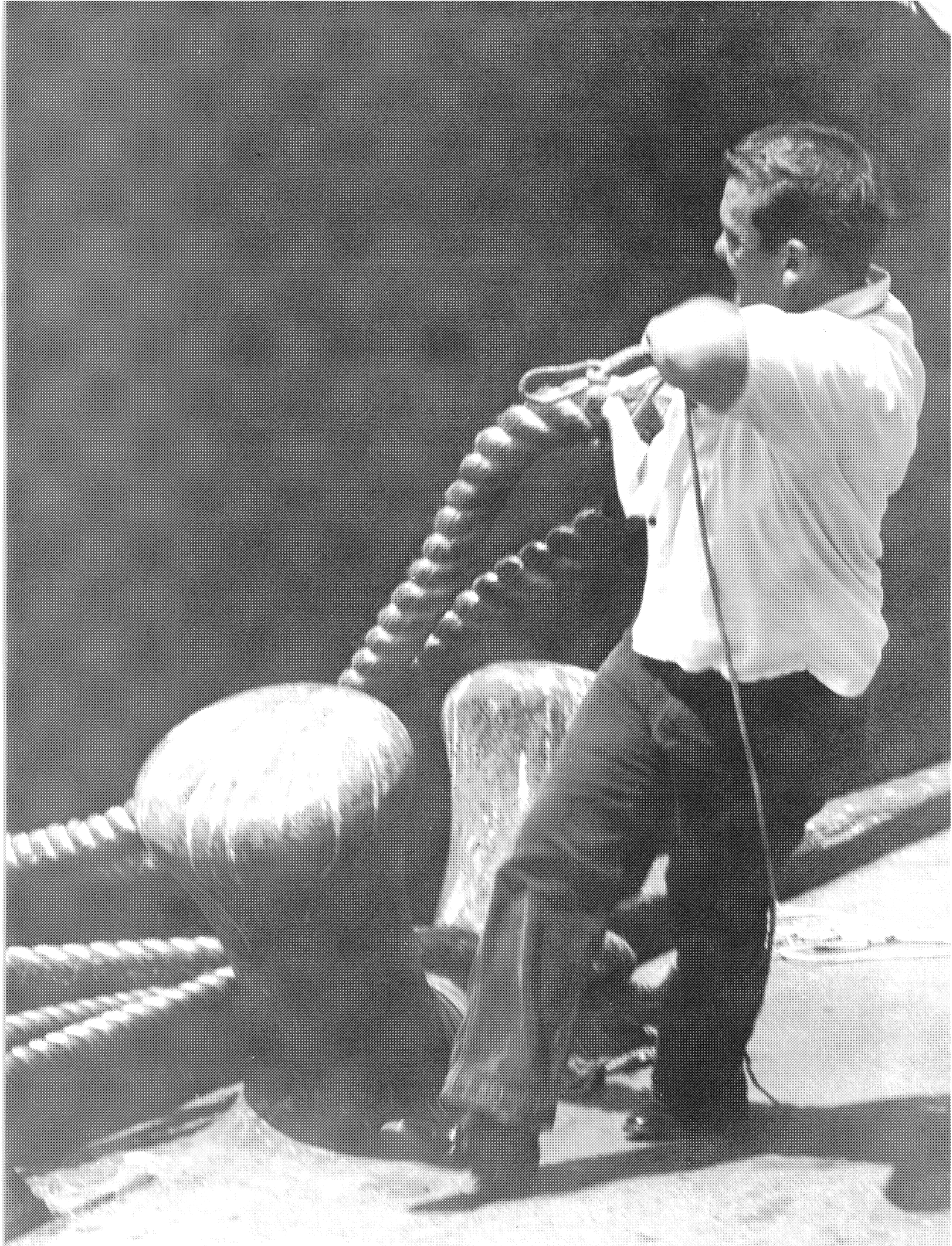
The energy efficiency of marine vessel power plants over other transportation modes has long been recognized. MarAd awarded several R&D contracts during the year to further improve the design and operation of marine engines. One study is examining the feasibility of applying gas turbine combustion technology to marine boilers. Another is investigating the possible application of the D-cycle to marine steam propulsion plants and is performing engineering and technical analysis on an advanced reheat propulsion system.

During the fiscal year the National Defense Reserve Fleet effectively reduced the consumption of electricity by 9.3 percent and diesel fuel by 5.2 percent, as compared to the previous year's usage.

*A MOPS (Marine Oil Pickup Service) vessel demonstrates how a small oil spill can be surrounded with a floating boom. The oil then can be skimmed from the water's surface before serious ecological damage occurs.*







# Maritime Manpower

## Seamen Training

During fiscal year 1975 the Maritime Administration opened a new Radar Training Center in Toledo, Ohio, and announced plans to establish another school in Seattle, Wash., early in 1976. Other Radar Training Centers are located in New York, N.Y., New Orleans, La., and San Francisco, Calif.

A total of 1,804 merchant seamen received training in navigation, collision avoidance radar, gyrocompass, and Loran at the Agency's four region schools during the past year.

Special training in radar was given to National Oceanic and Atmospheric Administration officers, Kings Point midshipmen, and New York State Maritime College cadets at the Eastern Region Training Center. The San Francisco Radar Training Center initiated a new Loran course during the fiscal year.

A new radar simulator and six display units were installed at the New Orleans Center to update the capabilities of the facility. The Central Region also developed a video-tape training film which fully covers the theory and plotting portion of the approved course. The video-tape, which was distributed to three vocational-technical schools in Louisiana that serve the offshore industry, is used in a MarAd/Coast Guard approved off-site training program. The video-tape is supplemented by a qualified instructor approved by MarAd. Those students successfully completing the preliminary training off-site then travel to New Orleans for final training and examination on the simulator.

Another 2,240 seamen completed a course in practical fire fighting at the Earle, N.J., school jointly sponsored by the Maritime Administration and the U.S. Navy's Military Sealift Command.

The Eastern Region actively participated in several meetings of the Maritime Training Advisory Board's Subcommittee

for the Development of Effective Fire Fighting Training, an association of industry and Government training professionals. The Subcommittee formulated a two-day minimum classroom curriculum to be taken by students before attending the MarAd/MSC fire fighting school. At the close of the fiscal year, the Subcommittee was in the process of developing a fire fighting manual and training films for this school.

Because of the diminishing seagoing job market, industry training facilities, sponsored by management and labor organizations, continued operating at reduced enrollments. During the year more than 170 men obtained original deck or engineering officers' licenses, and 286 upgraded their licenses. In the unlicensed seafaring ratings, 657 entry level seafarers graduated and 672 unlicensed seamen upgraded their ratings.

## Merchant Marine Academy

The U.S. Merchant Marine Cadet Corps was established on March 15, 1938. When the Corps was formed, training was given aboard merchant ships and

later at temporary shore establishments until permanent facilities were acquired. The Walter P. Chrysler estate at Kings Point, N.Y., was selected as the permanent site for the Academy in March 1942 and new construction was begun two months later. On September 30, 1943, the U.S. Merchant Marine Academy was dedicated.

The Academy offers courses in marine and nautical sciences, oceanography, computer science, nuclear engineering, naval architecture, mathematics, chemistry, social sciences, the humanities, business administration, and transportation. In addition to three years of classroom training, midshipmen also spend a year at sea on American-flag vessels.

The Academy's June 1975 graduates included 97 third mates, 87 third assistant engineers, and 17 officers who had completed the dual deck/engine program. In addition to Coast Guard Licenses, all graduates received Bachelor of Science degrees and, if qualified, commissions as Ensigns in the U.S. Naval Reserve. During the year the Federal academy maintained an average enrollment of 975 students.

In January 1974 MarAd amended its regulations to permit women to be nominated and appointed to the U.S. Merchant Marine Academy, thus becoming the first Federal service academy to admit women. At the start of the 1975-1976 school year, there were 32 women enrolled at the Academy.

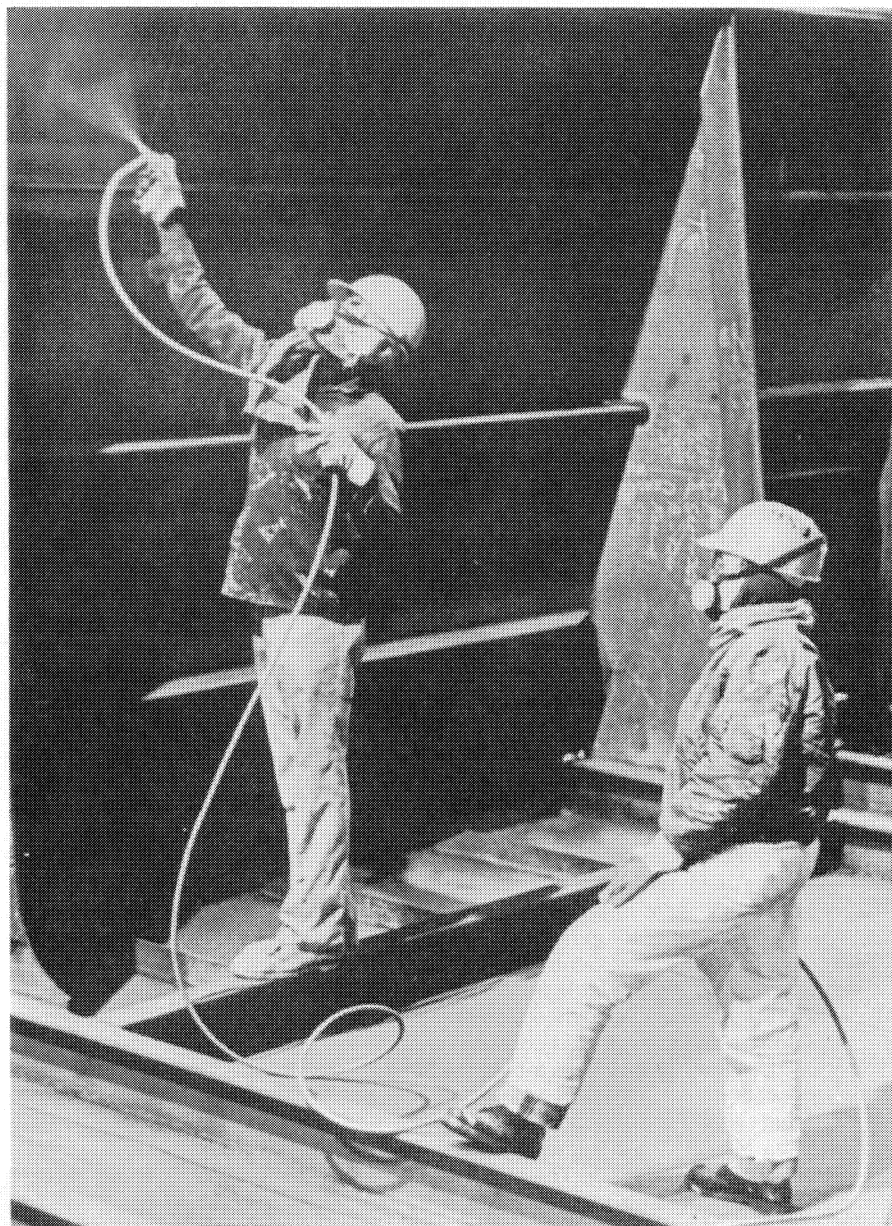
*Cadets at the U.S. Merchant Marine Academy receive intensive training in navigation as part of their overall marine science curriculum.*



*Approximately 63,000 longshoremen are employed at ports throughout the United States.*



Shipyards workers apply coatings to a section of a ship under construction.



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## State Maritime Academies

A total of 405 merchant marine officers were graduated from the six State Maritime Academies located at Vallejo, Calif., Castine, Me., Buzzards Bay, Mass., Traverse City, Mich., Fort Schuyler, N. Y., and Galveston, Tex. In addition to a Coast Guard license, each graduate received a Bachelor of Science degree (associate degree at the Michigan Academy) and, if qualified, a commission as Ensign in the U.S. Naval Reserve.

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## Labor Data

Average monthly seafaring employment during fiscal year 1975 declined 6.5 percent to 23,584 jobs, compared to the fiscal year 1974 average of 25,219 (see Table 8).

The total workforce in selected commercial shipyards increased 3.5 percent, from 87,971 workers in 1974 to 91,039 in 1975.

There was a slight decrease in average longshore employment due primarily to minor labor disputes and work stoppages at several ports.

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## Labor Relations

There were relatively few labor-management disputes or work disruptions in the U.S. maritime industry during fiscal year 1975. No work stoppages occurred among seafaring labor.

Shipyards work stoppages were limited to four disputes associated with the expiration of labor contracts. The most serious work stoppage occurred when the contract of the Pascagoula Metal Trades Council (PMTC) and one of its members, the International Brotherhood of Electrical Workers (IBEW), expired on November 17, 1974. Although the PMTC and IBEW did not strike, they refused to cross

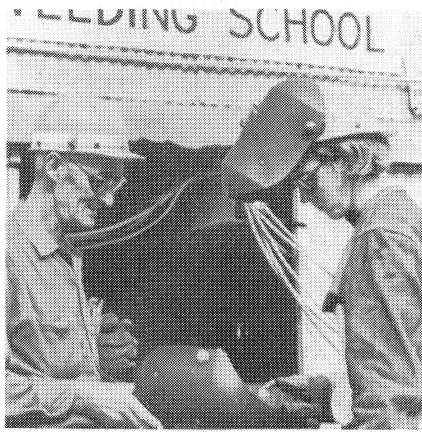
the picket line set up at the Ingalls Shipbuilding yards by the International Association of Machinists, a non-member of PMTC. After a loss of 260,000 man-days, an accord was reached and work was resumed on December 17, 1974.

There were six longshore strikes involving an estimated 5,500 workers in fiscal year 1975. The most serious work stoppages occurred at the Port of Boston, where over 25,000 man-days' work were lost in two associated incidents, on December 8-23, 1974, and May 30-June 30, 1975. The work stoppages were caused by a dispute between the Boston Shipping Association and the Boston local of the International Longshoremen's Association over local contract issues, primarily the guaranteed income provisions. Although an interim agreement was signed on December 23, 1974, the

full agreement was not ratified until June 30, 1975.

The computerized Maritime Contract Impact System (MCIS), which permits rapid calculation of base wage costs for shipboard personnel employed on U.S. dry cargo ships, has been expanded to include the U.S. tanker fleet. MCIS capabilities were demonstrated to major management and labor organizations in New York and San Francisco during the year. The system, which was developed in 1972, continues to attract new users as its capabilities are expanded and refined.





Many women are being employed by American shipyards and trained as welders—one of the skills most important in the shipbuilding process.

Officer Karl P. Lonsdale, Yeoman-Storekeeper Robert A. Griffin, Oiler Epifanio Rodriguez, and Oiler Herminio Rivera.

The U.S. Merchant Marine Meritorious Service Medal was presented to Captain Charles T. Miller, Master of the SS MAYAGUEZ, in recognition of his outstanding leadership and tact in negotiating the safe release of his captured crew and ship from the Cambodians, despite obvious communication barriers.

A Meritorious Service Medal was also awarded to Ordinary Seaman Lance J. Young of the SS CHEVRON MISSISSIPPI in recognition of his heroic actions that prevented an injured seaman from being washed overboard in heavy weather in the Gulf of Alaska on December 27, 1973.

## Merchant Marine Awards

The Merchant Marine Medals Act of 1956 authorizes the Secretary of Commerce to grant medals and decorations for outstanding and meritorious service or participation in national defense actions.

Six civilian crewmen of the USNS GREENVILLE VICTORY were awarded U.S. Merchant Marine Distinguished Service Medals for volunteering for a special mission to rescue the SS MAYAGUEZ, which had been seized in the Gulf of Siam by hostile Cambodian forces in May 1975. Fully aware of the potential dangers involved, the six merchant seamen followed U.S. Marines aboard the ship and were instrumental in getting the MAYAGUEZ underway and into safe waters. Those honored were First Officer Clinton H. Harriman, Jr., Second Assistant Engineer Michael A. Saltwick, Third

Four ships—the New York City fireboat FIREFIGHTER, and the tugs GRACE McALLISTER, BRIAN McALLISTER, AND TEXACO FIRE CHIEF—were designated Gallant Ships, the Government's highest commendation for a merchant vessel. A bronze plaque and citation were presented to the officers and crews of the vessels for their valiant fire fighting and rescue efforts when the C/V SEA WITCH and SS ESSO BRUSSELS collided in New York harbor in 1973. Meritorious Service Medals were presented to the commanding officers of the four vessels and a Gallant Ship Unit Citation Bar to each crew member.

The Maritime Administration acts as the Secretariat of the American Merchant Marine Seamanship Trophy Committee, which also includes representatives from the U.S. Coast Guard, labor, and management. Established in 1962, the Trophy honors U.S. citizens for actions exemplifying distinguished seamanship and professional competence.

The 1975 Trophy was awarded to Captain Lawrence Pagano, master of the cargo ship AMERICAN RACER, for his expert seamanship that resulted in the rescue in April 1974 of 14 people from lifeboats adrift in the Pacific Ocean under conditions complicated by heavy rain squalls, poor visibility, and heavy seas.

Chief engineer inspecting combustion controls of a Great Lakes vessel.







# National Security

A strong American merchant marine is essential for our national security. In peacetime the American merchant fleet serves as a major supply line of U.S. defense forces throughout the world, but also minimizes political economic pressures that the United States could be subjected to if it had to depend on foreign maritime powers for shipping services. During national emergencies merchant ships and civilian seamen act as a naval auxiliary, provide logistic support to the military services by transporting goods, personnel, and materials, and transport materials essential for war production and support of the civilian economy.

## Reserve Fleet

The Maritime Administration maintains the National Defense Reserve Fleet (NDRF) in order to provide a ready source of merchant ships to support military operations, if the need arises. NDRF vessels are also available for use in non-military emergencies, such as commercial shipping crises.

The Fleet consists primarily of World War II tankers, cargo ships, Liberty and Victory ships, and naval auxiliary vessels anchored at James River, Va., Beaumont, Tex., and Suisun Bay, Calif.

As of June 30, 1975, there were 414 ships moored at the three NDRF locations (see Table 9). Of this total, 290 vessels were owned by MarAd and 124 Navy Department vessels were in the custody of the Reserve Fleet. In addition, five vessels moored at the former Reserve Fleet site in Mobile, Ala., are in the custody of the State of Alabama for use in the Artificial Fish Reef Program (P.L. 92-402).

During the year, 17 ships were placed in the Fleet and 96 were withdrawn. Of the 96 ships withdrawn, 70 were scrapped or used for nontransportation purposes, 18 were turned over to States for use in the Artificial Fish Reef Program, 6 were turned over to the U.S. Navy, one was given to the Department of the Interior, and one was sold for foreign-flag operation. The contraction of the Fleet since its establishment in 1945 is shown in Table 10.

The number of ships of all sizes in the Fleet Preservation Program—which involves conventional preservation, dehumidification, and cathodic protection—declined from 328 to 274.

## Material Control

No marine equipment was loaned to steamship operators, but equipment valued at \$29,750 was returned during the fiscal year. At year's end the value of equipment remaining on loan was \$93,700. Warehouse inventories are valued at \$4.25 million.

## Ship Sales

MarAd is authorized to sell NDRF vessels for scrap or nontransportation use. The Agency can also transfer vessels from the Fleet to any Government agency or charter vessels to U.S. companies when privately owned U.S.-flag ships are not available for charter at reasonable rates.

Nine Liberty ships and 52 other types from Reserve Fleet anchorages were sold for scrap or nontransportation use during the year for an aggregate return to the Government of \$16.9 million. The sale of 1,472 Liberties and 516 non-Liberties from NDRF anchorages from 1958 through 1975 has brought a total return of \$152.9 million to the Government.

The passenger ship SANTA ROSA built in 1958 with construction-differential subsidy and acquired by the Government in August 1974 through mortgage foreclosure proceedings, was sold for foreign-flag operation in April 1975 for a price of \$1 million.

Additionally, 14 non-Liberty ships from non-fleet locations were sold during fiscal year 1975 for scrapping or nontransportation use for an aggregate return of \$6.1 million. The sale of 184 vessels from locations outside the NDRF between 1958 and 1975 brought a total return of \$26.3 million.

In summary, 76 Government-owned ships were sold during the year for a return of \$24 million. Between 1958 and 1975 the sale of 2,173 ships for scrap or nontransportation use returned more than \$179 million to the U.S. Treasury.

## War Risk Insurance

The war risk insurance program administered by MarAd insures operators and seamen against losses as a result of hostile actions under circumstances in which commercial insurance is not available. During the fiscal year the Maritime Administration continued to administer war risk and certain marine and liability insurance programs authorized by Title XII of the Merchant Marine Act of 1936, as amended.

As of June 30, 1975, outstanding binders covering shipowners during the 30-day period after commercial war risk insurance, included 1,103 for war risk hull insurance, 1,040 for war risk protection and indemnity insurance, and 757 for war risk insurance of crew life and personal effects. From the inception of the program in 1952 through June 30, 1975, binder fees totaled \$1.1 million and expenses totaled \$1.07 million, of which \$452,364 was paid as fees and expenses of the underwriting agent appointed by MarAd to process the binders.

War risk builder's risk insurance for the pre-launching construction period was written on 164 ships from the inception of the program in 1953 through June 30, 1975. Premiums totaled \$3.5 million. From October 1962 through June 30, 1975, 52 policies were issued for war risk builder's risk insurance for the post-launching construction period, each with a service fee of \$75 and subject to attachment and premium assessment upon the termination of commercial insurance resulting from the outbreak of hostilities.

*Two tankers under construction in a commercial shipyard. Upon completion they were to be chartered to the Military Sealift Command.*



A standby war risk cargo insurance program was continued during the year. This program becomes effective when the Assistant Secretary of Commerce for Maritime Affairs finds that insurance adequate for the needs of U.S. waterborne commerce cannot be obtained from commercial sources at reasonable terms and conditions. Commercial underwriting agents are employed to write this insurance and, as of June 30, 1975, 38 were under contract.

At the request of the U.S. Navy, war risk insurance was provided without premium charge but on a reimbursable basis for losses incurred as authorized under Section 1205 of the 1936 Act. During the fiscal year insurance coverage in effect was as follows:

1. Second seamen's war risk insurance was provided for the crews of 17 Government-owned tankers operated for the account of the Military Sealift Command (MSC).
2. Second seamen's war risk insurance was provided on one privately owned U.S.-flag vessel and its crew while under bareboat charter to MSC.
3. Second seamen's war risk insurance was provided for the crews of 38 privately owned U.S.-flag tankers and dry cargo vessels chartered to MSC. The coverage provided is limited to the "Vietnam Combat Zone," referred to by commercial underwriters as an additional premium trading area.

Net premium savings to the Department of the Navy under the first two programs, from their inception in 1954 and 1964, respectively, to June 30, 1975, was estimated at \$1.3 million, after deducting claims payments of \$110,740. Net premium savings to the Navy under the third program, from its inception in 1968 to June 30, 1975, was estimated at \$5.2 million after deducting claims payments of \$56,401.

Under Section 1208(a) of the 1936 Act, money in the war risk insurance revolving fund may be invested in U.S. securities or in securities on which the United States guarantees principal and interest. Since 1962, when the initial investment was made, interest earned totaled \$2.7 million.

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## Marine Insurance

The Maritime Administration continued to act as the insuring agent for Government-owned ships during fiscal year 1975. There were seven claims outstanding of a marine and war risk insurance nature with an estimated settlement value of \$218,000. Six of the claims were marine protection and indemnity claims from operations in Vietnam, with an estimated reimbursement value from commercial insurance (in effect during the Vietnam build-up) amounting to \$207,000.

MarAd determines whether the insurance placed in commercial markets by mortgagors of ships on which the Government holds or insures mortgages, by charterers of Government-owned ships, and by subsidized vessel operators, complies with contract requirements. The insurance amounts approved during fiscal year 1975 are presented in Table 11.

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## Inter-Agency Projects

The Maritime Administration continued to work closely with other Government agencies and departments to further improve the Nation's maritime capabilities.

A MarAd/Navy/Office of Management and Budget team examined the capacity of existing American shipyards to meet the combined Navy and MarAd peacetime shipbuilding requirements. The objectives were to develop five-year projections of subsidized, private unsubsidized, and Navy ship construction in U.S. yards, identify potential conflicts in demand for resources, and recommend solutions to identified problems. The resource analysis investigated the availability of shipbuilding way space, critical ship components, steel, and skilled manpower. The study concluded that there is no available evidence that slippage of ship delivery schedules will occur.

A study of the current and projected shipbuilding mobilization base requirements and capabilities was jointly initiated by the Deputy Secretary of Defense and the Under Secretary of Commerce. This study, which focuses upon possible military conflicts of both 90-180 days' and three years' duration, will develop the basis upon which additional shipbuilding mobilization planning efforts can be assessed.

The test of the Merchant Vessel Locator Filing System (USMER), which will provide—via reports on the Department of Defense and U.S. Coast Guard communications systems—a continuous plot of the location of merchant ships, was successfully completed and the system was approved for application to all U.S.-flag ships. The system will significantly improve capabilities to protect and mobilize merchant shipping in emergencies.

During the fiscal year, MarAd and the Navy launched a joint research program to enhance the ability of the U.S. merchant fleet to provide logistical support to naval vessels in a national emergency. Designated the Merchant Ship Naval Auxiliary Program (MSNAP), the project will develop a system to quickly modify commercial containerships to enable them to provide at-sea replenishment of naval vessels and also serve ports lacking adequate cargo offloading facilities. The Navy will be responsible for designing, procuring, testing, and evaluating the hardware, while MarAd's efforts will be centered on integrating the hardware systems into commercial ships and training civilian crew members to operate the systems.

Under the operational arrangement worked out, the Navy would store the MSNAP components until a national emergency develops. At that time the hardware would be shipped to pre-designated ports to await arrival of participating ships for installation. During the crisis period the ships' regular crews would be supplemented by civilian crews trained in at-sea replenishment procedures.

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## Emergency Readiness

Under guidance of the Emergency Planning Committee, MarAd during fiscal year 1975 focused on the development of practical procedures for effective emergency shipping operations. These efforts were particularly directed toward the initial mobilization phase of a non-nuclear major war. The Agency's mobilization plan was redrafted, and a project was initiated to define in more detail the procedures for requisitioning and directing the employment of ships in wartime.

Design of the projected emergency automatic data processing system was delayed to permit the redefinition of the operating concepts and procedures for which computers might be used.

As a result of a U.S. initiative, the 27th Plenary Meeting of the Planning Board for Ocean Shipping (PBOS), held in London in April 1975, concluded that a general review should be made of plans for the wartime Defense Shipping Authority. This review will refine operating concepts and procedures to promote the effective and efficient use of computers. Also at U.S. urging, the PBOS agreed to investigate arrangements for the supply, support and repair of NATO merchant ships in wartime and to examine the need for cooperative action on wartime shipbuilding.

An understanding in principle was reached with the Department of Defense that it would request sufficient funds in fiscal year 1977 so that approximately 30 NDRF Victory ships could be brought to an advanced state of readiness, capable of activation within five to 10 days. In view of the small number of Victory ships remaining in the NDRF, the Emergency Planning Committee concluded that the troop ships still on hand, which are in good condition, should be retained for possible conversion to freighters during the initial period of any future war.

The Emergency Planning Committee also concluded that designs for mobilization ships should be revised and updated, and preliminary conceptual analysis was carried out to provide the basis for new standard designs for emergency vessels.

In the wake of the MAYAGUEZ incident, MarAd worked with other Government agencies to improve arrangements for transmitting special warning notices of possible hostile situations to ships at sea and to their company headquarters.

The Agency participated in several exercises to assess the effectiveness of emergency plans at the international, national, and regional levels. Activities included a NATO exercise, conducted concurrently with a worldwide exercise, sponsored by the Joint Chiefs of Staff, which provided coordinated training for U.S. civilian agencies and military staff personnel in the procedures by which NATO and the United States would direct, control and protect merchant shipping during periods of crisis and war. The Maritime Administration established an exercise cell to perform the functions of the National Shipping Authority (NSA) in support of the exercise objectives. A special feature of the NATO exercise was a naval control of shipping and convoy indoctrination program for masters, mates, and radio officers of ships in the North Atlantic and Caribbean during the exercise period.

On a continuing basis, MarAd assists the Department of Defense and NATO Naval commands in the review and updating of military plans concerning the utilization of merchant ships for logistic support and for control and protection of merchant shipping in periods of international crisis and war.

MarAd's unit of the National Defense Executive Reserve (NDER), a Federal Government program that provides a reserve of highly qualified individuals from industry and professional groups to serve in executive positions during a national defense emergency, remains a vital part of the Agency's emergency executive staff plan. Active recruitment and training of qualified personnel to fill NDER positions in domestic and overseas staffs continued throughout the year.



*Robert J. Blackwell, Assistant Secretary of Commerce for Maritime Affairs (center), and Igor Averin, Head of the Foreign Relations Department of the Soviet Ministry of Marine (right) discuss provisions of the U.S./U.S.S.R. Maritime Agreement with an American newsman.*



# International Activities

Of continuing significance in the field of international activities were the talks related to the U.S./U.S.S.R. Maritime Agreement. In addition, discussions concerning a wide variety of technical matters were held in Canada, the Soviet Union, Iran, West Germany, Portugal, and the Scandinavian countries.

MarAd's Foreign Maritime Representatives, located in London, Brussels, Rome, Tokyo, and Caracas, monitor foreign shipping and shipbuilding activities and technological advances and represent U.S. maritime interests abroad.

## U.S./U.S.S.R. Maritime Agreement

An important impetus to the normalization and expansion of commercial relationships between the United States and the Soviet Union is the Maritime Agreement signed on October 14, 1972. This Agreement provides a broad framework and a clear set of ground rules for maritime activities between the two countries.

The Agreement opened major U.S. and Soviet ports for easy access by vessels of the other nation. It also stipulates that each nation's merchant fleet be provided the opportunity to carry at least one-third of all waterborne commerce moving between the two countries.

During the past fiscal year American and Soviet maritime delegations—led by Assistant Secretary for Maritime Affairs Robert J. Blackwell and Igor M. Averin, Head of the Foreign Relations Department of the Soviet Ministry of Merchant Marine—met twice in Washington, D.C., and once in Moscow. Discussions focused on implementation of the current agreement and negotiation of a new agreement to replace the existing one which expires December 31, 1975. Numerous technical and administrative problems with respect to the handling and treatment of U.S.-flag ships and American seamen while in

Soviet ports were resolved at these meetings.

A major topic at the discussions was the freight rate paid by the U.S.S.R. to American operators carrying grain to the Soviet Union. Since July 1973 an index system based on the U.S. Gulf/Holland-Belgium grain trade had been utilized to govern shipping rates paid to American-flag vessels engaged in the grain shipments to the Soviet Union. However, because of distortions in this base trade, the index system was allowed to expire on March 31, 1975. Both sides agreed to an interim rate of \$9.50 per long ton to cover the period through June 30, 1975. At the end of the fiscal year agreement had not been reached on a new U.S. Gulf/Black Sea rate for American operators.

A freight revenue imbalance that had evolved in liner cargo shipments between the two countries in 1973 was eliminated in 1974. MarAd continues to monitor all U.S./U.S.S.R. trade movements to insure that a substantial share is moved on U.S.-flag vessels.

Details of U.S.-flag participation in liner and bulk movements between the two countries are covered in Chapters 2 and 4.

Directly attributable to the 1972 Maritime Agreement are the improved lines of communications between U.S. and Soviet shipping officials and scientific personnel. Under the auspices of the joint U.S./U.S.S.R. Commission on Cooperation in Transportation, maritime industry officials from the two countries have exchanged visits. Cooperative programs have been established in the areas of port and cargo operations, handling of hazardous cargo, port management training, and marine terminal technology and control systems.

During the past fiscal year MarAd awarded a research contract for the development of a detailed instrumentation package to measure wave heights and structural stress and to provide project management during installation of instrumentation on a test merchant vessel. Data measured will be exchanged for similar data obtained from a Soviet vessel. The United States and the Soviet Union have also agreed to exchange technical information on ice transiting technology.

## International Meetings

MarAd officials served on U.S. delegations to the Intergovernmental Maritime Consultative Organization (IMCO), Organization for Economic Cooperation and Development (OECD), United Nations Conference on Trade and Development (UNCTAD), Economic-Social

Commission for Asia and the Pacific (ESCAP), and the NATO Planning Board for Ocean Shipping (PBOS).

There were 67 regularly scheduled or *ad hoc* conferences and meetings during the past year which were attended by Agency representatives. Many of these were under the auspices of IMCO, which, as in years past, focused primarily on the problem of marine pollution. Other topics discussed at IMCO conferences dealt with ship design and equipment, safety, stability and load lines, satellite communications, maritime law, nuclear ship propulsion, foreign acceptance of LASH/Seabee systems, ship design criteria for LNG and LPG ships, ice transiting technology, and international shipbuilding concepts.

MarAd representatives also participated in Organization of American States meetings on port development and at Economic Commission for Europe conferences concerned with container and inland water transport problems.

At a series of UNCTAD meetings, a Code of Conduct for Liner Conferences was drawn up over the opposition of the United States and other major maritime powers. The most controversial feature of the Code is a provision that would divide cargo according to a 40-40-20 percent formula. Forty percent of the cargo moving between two countries would be allocated to each of the national-flag fleets. The remaining 20 percent would be available to third-flag carriers. At the end of the fiscal year only nine countries had signed the Code, far short of the 24 countries, representing at least 25 percent of the world's liner tonnage, needed for ratification.

As was noted in Chapter 9, Agency delegates attended several PBOS working group sessions, as well as the PBOS Plenary Session held this year in London.



*Members of the Maritime Subsidy Board during fiscal year 1975 were (left to right): Deputy Assistant Secretary Howard F. Casey, Assistant Secretary Robert J. Blackwell, and General Counsel A. Reading Van Doren.*

# Administration

## Maritime Subsidy Board

The Maritime Subsidy Board, (Board), by delegation from the Secretary of Commerce, exercises the authority vested in him to award, amend, and terminate subsidy contracts for the construction and operation of vessels in the foreign commerce of the United States. The Board's functions are implemented through fact-finding investigations, compilation of domestic and foreign trade statistics and cost data, and public hearings. Decisions, opinions, orders, rulings, and reports of the Maritime Subsidy Board are final unless the Secretary of Commerce, on his own motion or pursuant to a petition filed by an interested party, undertakes review of its action. Final actions by the Secretary may be appealed to the Federal Courts.

The Assistant Secretary of Commerce for Maritime Affairs, as *ex officio* Maritime Administrator, is Chairman of the three-member Maritime Subsidy Board. Other members are the Deputy Assistant Secretary and the Agency's General Counsel. The Secretary of the Maritime Administration acts as an alternate member in the absence of any one of the three permanent members.

In fiscal year 1975 the Board convened 50 meetings in which it considered and acted on 432 items and issued 23 formal opinions, rulings, and orders. It also published 94 notices in the *Federal Register* pertaining to required statutory hearings and development and adoption of rules and regulations in the implementation of the Merchant Marine Act of 1936, as amended.

Of particular significance, the Board approved three separate applications for new 20-year Operating-Differential Subsidy Agreements (ODSAs) under Title VI of the Act. The approvals are as follows:

1. On August 2, 1974, the Board approved payment of ODS for 14 vessels owned by Moore-McCormack Lines, Inc., (Mormac) for continued operation on Trade Route No. 1 (U.S. Atlantic/East Coast South America) and Trade Route No. 15-A (U.S. Atlantic/South and East Africa). Mormac's new ODSA, Contract No. MA/MSB-338, is effective January 1, 1975, through December 31, 1994.
2. On June 30, 1975, the Board approved payment of ODS for 13 vessels owned and/or leased by Farrell Lines Inc. for continued operation on Trade Routes Nos. 14-1 (U.S. Atlantic and Gulf/West Africa), 15-A (U.S. Atlantic/South and East Africa), and 16 (U.S. Atlantic and Gulf/Australia and New Zealand). Farrell's new ODSA, Contract No. MA/MSB-352, will be effective January 1, 1976 through December 31, 1995.
3. On June 30, 1975, the Board approved payment of ODS for 11 vessels owned by Delta Steamship Lines, Inc., plus one chartered C4 vessel, for continued operation on Trade Routes Nos. 14-2 (U.S. Atlantic and Gulf/West Africa), 19 (U.S. Gulf/Caribbean), and 20 (U.S. Gulf/East Coast of South America). Delta's new ODSA, Contract No. MA/MSB-353, will be effective January 1, 1976, through December 31, 1995.

In each of the new long-term ODSAs awarded to liner companies, expenses incurred for hull and machinery (H&M) insurance and for maintenance and repairs (M&R) not compensated by insurance will not be eligible for subsidy on voyages terminated after December 31, 1977. Elimination of subsidy for M&R and H&M expenses with respect to these three contracts will result in savings of approximately \$59 million.

In March 1975 the Board issued its final opinion and order in Docket Nos. S-288 and S-288 Sub 1, which involved an ODS application from American Export Lines, Inc., (AEL), for service between U.S. Atlantic ports and the United Kingdom-Continent, Scandinavian, and Baltic ports (Trade Route Nos. 5-7-8-9, 6, and 11). The application was the first of several being considered by the Board under Section 605(c), wherein subsidy

was requested for primarily an existing service on a major trade route served by technologically advanced vessels. AEL's application was opposed by two unsubsidized U.S.-flag containership operators, Sea-Land and USL.

The Board found that Section 605(c) of the Act *did not bar* subsidy for service in the North Atlantic/United Kingdom-Continent trade (T.R. 5-7-8-9) since the award of subsidy would not give undue advantage to AEL or be unduly prejudicial to other U.S. operators in this trade. The Board then determined that Section 605(c) *did bar* subsidy for service on T.R. 6, which includes U.S. North Atlantic ports to Scandinavian and Baltic areas, and T.R. 11 which covers U.S. South Atlantic ports to the United Kingdom and Europe, north of Portugal, including Scandinavian and Baltic ports. On May 27, 1975, the Secretary of Commerce denied petitions from Sea-Land and USL for review of the Board's decision in the proceedings. At the close of the fiscal year AEL's application was being reviewed by the Board under other provisions of the Act.

On April 22, 1975, the Assistant Secretary for Maritime Affairs and the Maritime Subsidy Board approved an application filed by Lykes Bros. Steamship Co., Inc., to amend its present ODSA, Contract No. FMB-59, to establish a subsidized service between U.S. ports on the Great Lakes and St. Lawrence River and ports in Portugal, Spain, Atlantic Morocco, the Mediterranean Sea, Southwest Asia from Suez to Burma, and Africa on the Red Sea and Gulf of Aden (Trade Area No. 4). Lykes proposed to utilize up to four breakbulk vessels, included in its existing ODSA, to provide a minimum of three and a maximum of 10 subsidized sailings annually during each Great Lakes navigational season.



An examination of cargo statistics for the years 1968-1974 revealed that the volume of traffic was sufficient to support a U.S.-flag service on the level proposed by Lykes. In addition, there were possibilities for increased trade opportunities with the Soviet Union and nations bordering the Red Sea and Persian Gulf, as a result of the reopening of the Suez Canal. During the past seven years only foreign-flag ships provided regularly scheduled liner services on the Great Lakes.

With these reasons in mind the Assistant Secretary for Maritime Affairs reaffirmed the essentiality of Trade Area No. 4 and the MSB added the Great Lakes service to Lykes' ODSA.

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## Administrative Law Judges

Operating in conjunction with the Executive Staff, the Administrative Law Judges conduct public hearings necessitated by the various merchant marine and shipping statutes and thereafter prepare initial decisions. They also maintain the Agency's official dockets of formal proceedings. Cases are referred by the Assistant Secretary of Commerce for Maritime Affairs or the Maritime Subsidy Board.

At the beginning of fiscal year 1975 there were 22 proceedings pending before the Administrative Law Judges. Of these, 11 involved ODS matters and 11 concerned appeals from final decisions of contracting officers in disputes between shipowners, shipyards, and MarAd. Of these proceedings, five were settled, three were returned to the Board for administrative determinations, three initial decisions were issued, and four hearings were completed in which initial decisions were pending. Seven cases were listed as inactive or pending at the close of the fiscal year.

The proceedings initially decided by the Administrative Law Judges included the following:

1. Docket No. CA-66 and CA-Prudential-Grace Lines, Inc. v. Sun Shipbuilding & Drydock Co.—an appeal from the contracting officer's final determinations regarding extension of contract delivery dates for ships built by Sun under contract No. MA/MSB-21. At the end of the fiscal year, this matter was awaiting a final decision by the Maritime Subsidy Board.

2. Docket No. CA-85, *Farruggio Construction Co., Inc.*—an appeal from the contracting officer's decision denying additional costs for the construction of a marine elevated railway due to differing site conditions. On April 4, 1975, the Assistant Secretary of Commerce for Maritime Affairs issued a final decision in Docket CA-85, upholding the initial decision of the Administrative Law Judge denying the appeal.
3. Docket No. S-338 *American Mail Line, Ltd., American President Lines, Ltd., and States Steamship Co.*—an appeal of the 1969 subsidy rate for wages of officers and crews and disallowance of *quid pro quo* payments. At the end of the fiscal year, this matter was awaiting a final decision by the Maritime Subsidy Board.

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## Internal Management

In June 1975 the Maritime Administration was in the process of establishing a new Great Lakes Region that encompasses maritime activities in the States of Michigan, Minnesota, Wisconsin, Illinois, Indiana, Ohio, and the Lake coastal areas of Pennsylvania and New York. Establishment of the new region will insure a wide range of MarAd services to the area's maritime community and represents a significant step in Agency efforts to service the Great Lakes segment of the American merchant marine.

The new Great Lakes Region will have its headquarters in Cleveland, Ohio, and also will include marketing offices in Chicago, Ill., and Detroit, Mich., and a Radar Training Center in Toledo, Ohio. MarAd's other Region Offices are located in New York, N.Y., New Orleans, La., and San Francisco, Calif. Geographical areas of responsibility of the Agency's four Region Offices are presented on the /map on page 53.

The organizational elements of MarAd are shown on page 52.

During fiscal year 1975 MarAd decentralized payment of CDS vouchers submitted by shipyards. Region Offices now make the payments, thereby substantially expediting payments to the yards.

Despite a reduction of 26 positions in the Agency's permanent ceiling, it was necessary to provide additional staffing to meet new or increased workloads in such areas as the operating subsidy program for bulk carriers, capital construction

funds, Title XI ship financing guarantees, and the energy conservation program. The required reductions and readjustments of manpower resources were accomplished through a systematic review and evaluation process. This included elimination or curtailment of low priority activities, studies to improve work methods and procedures, manpower surveys to improve the use of resources, and automation of administrative and operating procedures.

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## Financial Analysis

During the year early warning reports were issued on the financial condition of shipping companies participating in Agency programs, so that company management could initiate timely corrective action where warranted. Financial reviews of companies applying for Title XI guarantees were also undertaken. This often resulted in recommendations pertaining to the financial covenants deemed appropriate to assure financing of the proposed vessel construction, reconstruction, or reconditioning.

Major steps were taken to increase staff productivity by developing computer programs to perform repetitive, time-consuming calculations of interest, bond amortization depreciation, cash flow, and present value. These efforts resulted in a significant cost savings permitting a slight reduction in personnel, despite an increased workload for the Agency's financial analysis staff.

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## Internal Audits

Five internal audit reports were submitted by the U.S. Department of Commerce, Office of Audits. They were: (1) Audit of Energy Conservation Program for Commercially Rented and Privately Owned Vehicles; (2) Review of MarAd's Financial Information Systems, MarAd Headquarters; (3) Audit of the Implementation of the MarAd Financial Information System at the U.S. Merchant Marine Academy; (4) Audit of the Ship Transfer Program; and (5) Audit of Selected Intermodal Transport Activities.

With minor exceptions, the Maritime Administration concurred in the recommendations contained in these reports and appropriate implementing actions have been taken.

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## Management Information

The new computer system installed in 1974 is now being utilized by various

offices and project managers to carry out the Agency's programs. For example, the computer stores and retrieves trade information, tracks the status of the cargo preference program, assists U.S. steamship companies in expanding their market capabilities, develops plans for shipping needs during national emergencies, and monitors improvements in U.S. port facilities.

During 1975 MarAd began a major effort to automate activities related to the ODS program. Already underway is a program to design and develop a comprehensive data base using Census trade data to provide greater accuracy and timeliness of vessel and commodity movement information. This project will be the first step toward a long-range goal of eliminating the Vessel Utilization and Performance Report that must be submitted by all U.S.-flag operators engaged in U.S. foreign trade. Another effort in this program will examine the benefits to be derived from mechanization of the operating-differential subsidy rate determination process.

Increased use is being made of computer terminals located in MarAd Region Offices which are used for the transmission of digital data to and from Washington, D.C. Initial applications involved transmission of personnel and accounting information. Additionally, Regions now have access to maritime trade shipper market leads and maintenance and repair information. A special training program has been initiated to assist Region personnel in using computer terminals.

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## Personnel

### Employment

Total employment in the Maritime Administration decreased by 30 to 1,536 during fiscal year 1975. Although there was a slight decrease in the total number of supervisors, the percentage of minority supervisors remained stable at 15 percent.

Female employees, who now constitute 31 percent of MarAd's workforce, continued to make gains despite the decrease in total personnel. Women received 39 percent of all promotions during the past year and now hold six percent of the grade 12 and above positions.

On June 30, 1975, minorities comprised 26 percent of the total workforce. Minorities received 25 percent of all promotions. Seventeen percent of all GS-9 through GS-11 positions were filled by minorities. During the fiscal year the percentage of minorities at the GS-12 and

above level increased from seven to eight percent.

### Training

MarAd employees attended 1,850 Agency-supported training courses representing a 36-percent increase over the previous year.

The Executive Manpower Resources Board continued to develop policies and procedures for MarAd's Executive Development Program. Three pilot managerial assessment workshops were conducted and a final format approved. A study is underway to develop descriptions of the specific skills and knowledge required for MarAd's top managerial positions and to design and implement Individual Development Plans.

University of Arizona courses are now being offered via a video-tape system to both the headquarters and Region staffs.

### Awards

Four MarAd employees received Department of Commerce Silver Medal Awards and four received MarAd Bronze Medals. The Silver Medal is the second highest award that can be bestowed on a Commerce employee; the Bronze Medal is MarAd's top award.

In addition, 54 employees were granted Quality Increases and 190 employees received Special Achievement Awards. Three employees were given special recognition for their contributions as supervisors to MarAd's Equal Employment Opportunity Program. Cash awards were presented to seven employees for their suggestions, which resulted in tangible savings of \$8,050 to the Agency. Management officials adopted 22 other suggestions submitted by employees.

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## Installations and Logistics

### Material Control

Rental of mobilization reserve machine tools and equipment to commercial concerns working on defense contracts or in support of merchant marine programs brought in \$118,882 in revenue.

The Agency declared as excess property goods having an acquisition value of \$952,937. Property having an acquisition value of \$389,826 was either redistributed within MarAd or transferred to other Government agencies. Excess property having an acquisition value of \$131,904 was sold for \$61,166 during fiscal year 1975.

## Real Property

At the end of the year MarAd's real property included the following: Reserve Fleet sites at Suisun Bay, Calif., Beaumont, Tex., and James River, Va.; the U.S. Merchant Marine Academy, Kings Point, N.Y.; a warehouse at Kearny, N.J.; a Wilmington, N.C., Maritime Facility; and a Maritime Oily Waste Treatment Facility, Yorktown, Va.

National Maritime Research Centers were maintained at Kings Point, N.Y., and Galveston, Tex., although the Galveston facility is in the process of being phased out.

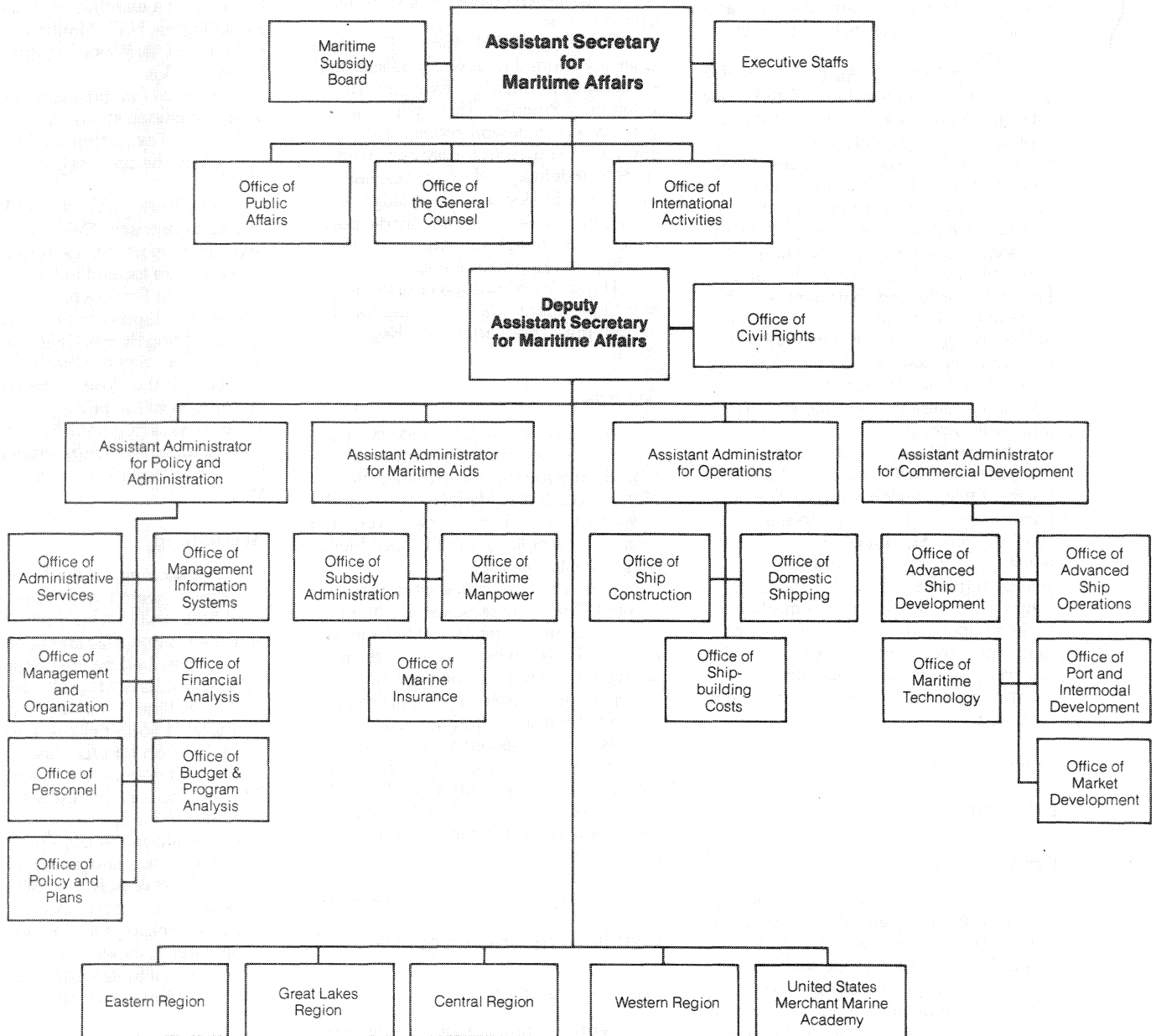
New York, N.Y., New Orleans, La., and San Francisco, Calif., are the sites of MarAd's Region Offices. Radar Training Centers were located in New York, New Orleans, San Francisco, and Toledo. Market development offices were maintained in Long Beach, Calif., Chicago, Ill., Norfolk, Va., Seattle, Wash., and Houston, Tex. At the close of the fiscal year MarAd was in the process of establishing a Great Lakes Region Office in Cleveland, Ohio, a Radar Training Center in Seattle, Wash., and a marketing office in Detroit, Mich.

### Accounting

The accounts of the Maritime Administration were maintained on an accrual basis and in conformity with the principles, standards, and related requirements prescribed by the Comptroller General. The cost of combined operations of the Maritime Administration for the year totaled \$538 million. This included \$493.4 million for ODS and CDS, \$28.3 million for research and development, \$23.7 million for administrative expenses, \$9.8 million for operation of the U.S. Merchant Marine Academy, \$4.1 million for maintenance and preservation of Reserve Fleet vessels, \$3 million for financial assistance to State marine schools, and \$24.3 million for other operating income net of expenses.

Financial Statements of the Maritime Administration appear in Exhibits 1-4.

# Maritime Administration Organization Chart



June 30, 1975



# Maritime Administration Field Organization



# FINANCIAL STATEMENTS

June 30, 1975 and June 30, 1974 (Note 1)

## U.S. Department of Commerce—Maritime Administration

### Exhibit 1. Statement of Financial Condition

Assets	June 30	
	1975	1974
Selected Current Assets		
Fund Balances with Treasury:		
Budget Funds	\$ 893,181,299	\$ 858,895,138
Deposit Funds	2,989,831	1,065,017
Allocation from other Agencies	1,119,449	528,077
Budget Clearing Accounts	18,799	-0-
	<u>897,309,378</u>	<u>860,488,232</u>
Federal Security Holdings	<u>76,934,399</u>	<u>61,235,593</u>
Accounts Receivable:		
Government Agencies	367,275	850,197
The Public	2,485,330	5,027,427
Allowances (-)	-171,216	-171,216
	<u>2,681,389</u>	<u>5,706,408</u>
Advances To:		
Government Agencies	82,584	82,584
The Public	49,545	60,959
	<u>132,129</u>	<u>143,543</u>
<b>Total Selected Current Assets</b>	<b><u>977,057,295</u></b>	<b><u>927,573,776</u></b>
Loans Receivable:		
Repayable in Dollars	37,594,899	43,293,773
Allowances (-)	-11,386,609	-11,408,197
	<u>26,208,290</u>	<u>31,885,576</u>
Inventories:		
Raw Material and Supplies	<u>5,888,847</u>	<u>4,955,918</u>
Real Property and Equipment:		
Land	5,844,928	9,069,657
Structures and Facilities	35,357,644	32,699,955
Equipment and Vessels	1,573,612,194	1,538,586,125
Leasehold Improvements	92,119	239,104
Allowances (-)	-1,505,246,678	-1,485,715,160
	<u>109,660,207</u>	<u>94,879,681</u>
Other Assets:		
Work-in-Process, Contractors	744,224	2,536,346
Materials and Supplies—Other	516,794	528,561
Notes Receivable	1,885,815	-0-
Deferred Charges	975,476	747,248
Allowances (-)	-749,244	-747,248
	<u>3,373,065</u>	<u>3,064,907</u>
<b>Total Assets</b>	<b><u>\$ 1,122,187,704</u></b>	<b><u>\$ 1,062,359,858</u></b>

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

# FINANCIAL STATEMENTS

## U.S. Department of Commerce—Maritime Administration

	June 30	
<b>Liabilities</b>	<b>1975</b>	<b>1974</b>
Selected Current Liabilities (Note 2):		
Accounts Payable (Including Funded Accrued Liabilities):		
Government Agencies	\$ 59,597	\$ 53,047
The Public	<u>150,250,505</u>	<u>126,642,921</u>
	<u>150,310,102</u>	<u>126,695,968</u>
Advances From:		
Government Agencies	<u>2,557,955</u>	<u>2,412,126</u>
<b>Total Selected Current Liabilities</b>	<b><u>152,868,057</u></b>	<b><u>129,108,094</u></b>
Deposit Fund Liabilities	<u>2,989,831</u>	<u>1,065,017</u>
Unfunded Liabilities:		
Accrued Annual Leave	<u>2,588,425</u>	<u>2,539,867</u>
Other Liabilities:		
Vessel Trade-in-Allowances	372,887	6,817,225
Deferred Credits	<u>-0-</u>	<u>1,084,835</u>
	<u>372,887</u>	<u>7,902,060</u>
<b>Total Liabilities</b>	<b><u>158,819,200</u></b>	<b><u>140,615,038</u></b>
<b>Government Equity</b>		
Unexpended Budget Authority:		
Unobligated	329,957,861	89,460,458
Undelivered Orders	<u>604,922,423</u>	<u>798,552,614</u>
	<u>934,880,284</u>	<u>888,013,072</u>
Unfinanced Budget Authority (-):		
Contract Authority	<u>-114,636,075</u>	<u>-93,875,600</u>
Invested Capital	<u>142,169,095</u>	<u>125,428,990</u>
Receipt Account Equity	<u>955,200</u>	<u>2,178,358</u>
<b>Total Government Equity</b>	<b><u>963,368,505</u></b>	<b><u>921,744,820</u></b>
 <b>Total Liabilities and Government Equity</b>	 <b><u>\$ 1,122,187,704</u></b>	 <b><u>\$ 1,062,359,858</u></b>

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



# FINANCIAL STATEMENTS

## U.S. Department of Commerce—Maritime Administration

### Exhibit 2. Statement of Equity of U.S. Government

For Years Ended June 30, 1975 and June 30, 1974

	Years Ended June 30	
	1975	1974
Balance, Beginning of Fiscal Year	\$ 921,774,820	\$ 838,987,513
Additions:		
Funds Appropriated by Congress	584,883,000	575,342,000
Property Capitalized without Use of Funds	25,834,302	-0-
	<u>1,532,462,122</u>	<u>1,414,329,513</u>
Deductions:		
Net Cost of Combined Operations (Exhibit 3)	537,977,693	455,172,191
Payments into General Fund Receipts	31,099,326	37,699,657
Unobligated Balances Withdrawn or Restored (-)	16,599	-288,495
Appropriation Transferred Out	-0-	1,340
	<u>569,093,618</u>	<u>492,584,693</u>
<b>Balance, Close of Fiscal Year (Exhibit 1)</b>	<b><u>\$ 963,368,504</u></b>	<b><u>\$ 921,744,820</u></b>

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

# FINANCIAL STATEMENTS

## U.S. Department of Commerce—Maritime Administration

Exhibit 3.

### Statement of Operations

For Years Ended June 30, 1975 and June 30, 1974 (Note 1)

	Years Ended June 30	
	1975	1974
<b>OPERATIONS OF MARITIME ADMINISTRATION:</b>		
Net Costs of Operating Activities		
Reserve Fleet Programs:		
Depreciation on Vessels	\$ 5,901,130	\$ 5,034,949
Maintenance and Preservation	4,123,667	4,384,206
	<u>10,024,797</u>	<u>9,419,155</u>
Maritime Training Program	9,821,870	8,416,593
Maintenance of Shipyards and Warehouses	30,883	31,782
	<u>19,877,550</u>	<u>17,867,530</u>
Direct Subsidies and Costs Attributable to National Defense:		
Operating-Differential Subsidies	263,560,475	255,828,290
Construction-Differential Subsidies	229,832,406	173,549,669
Cost of National Defense Features	1,032,778	1,290,483
	<u>494,425,659</u>	<u>430,668,442</u>
Administrative	23,723,337	20,048,085
Research and Development	28,268,110	20,280,791
Financial Assistance to State Marine Schools	3,000,522	2,626,586
	<u>54,991,969</u>	<u>42,955,462</u>
Other Costs (— Income)		
Depreciation on Vessels Applicable to Prior Years	-0-	1,461,268
Loss (— Income) on Sale of Obsolete Vessels	-18,376,674	-24,560,662
Loss (— Income) on Sale of Fixed Assets Other than Vessels	-54,884	-20,945
Inventory and Property Adjustments	146,470	-3,553,908
Interest Income	-600,009	-938,606
Miscellaneous (Net)	-387,529	1,817,585
	<u>-19,272,626</u>	<u>-25,795,268</u>
<b>Net Cost of Maritime Administration Operations</b>	<b>550,022,552</b>	<b>465,696,166</b>
<b>OPERATIONS OF REVOLVING FUNDS (— Net Income or Loss):</b>		
Vessel Operations Revolving Fund	43,221	125,993
War Risk Insurance Revolving Fund	-341,146	-442,039
Federal Ship Financing Fund, Revolving Fund	-11,746,934	-10,207,929
	<u>-11,746,934</u>	<u>-10,207,929</u>
<b>Net Cost of Combined Operations (Exhibit 2)</b>	<b>\$ 537,977,693</b>	<b>\$ 455,172,191</b>

The notes and schedules to financial statements are an integral part of this statement

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# U.S. Department of Commerce—Maritime Administration

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## Notes to Financial Statements — June 30, 1975 and 1974

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

2. The Maritime Administration was contingently liable under agreements insuring mortgages, construction loans, and accrued interest payable to lending institutions totaling \$2,366,248,362 at June 30, 1975, and \$1,665,923,624 at June 30, 1974. Commitments to insure additional loans and/or mortgages amounted to \$1,846,095,667 at June 30, 1975, and \$2,096,709,340 at June 30, 1974. U.S.

Government securities and cash of \$353,357,476 at June 30, 1975, and \$148,661,118 at June 30, 1974, 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 also conditional liabilities for prelaunching War Risk Builder's Risk Insurance of \$25 billion at June 30, 1975, and \$21 billion at June 30, 1974. The Maritime Administration was also contingently liable for undetermined amounts in connection with settlements to be made under seven claims against the Administration aggregating \$218,000 at June 30, 1975, and 50 claims aggregating \$1,200,500 at June 30, 1974. Based on previous experience, it is anticipated that settlements of these claims will be made for amounts substantially less than the gross amounts of the claims. At June 30, 1975 and 1974, the U.S. Treasury held in safekeeping for the Maritime

Administration \$105,000 and \$155,000, respectively, of U.S. Government securities which had been accepted from vessel charterers, subsidized operators, and other contractors as collateral for their performance under contracts.





LONG TRAIN OF BARGES

**Table 1: PRIVATE CONSTRUCTION CONTRACTS AWARDED IN FISCAL YEAR 1975**

Owner	Shipbuilder	Type	No.	Total Dwt. Tonnage	Estimated Completion Date	Total Estimated Cost <sup>1</sup>
American Steamship	Bay SB	Ore Carrier	2	124,000	1977/79	\$ 65.0
Atlantic Richfield	National Steel & SB	Crude Oil Tankers	2	300,000	1979/80	123.8
Bethlehem Steel	Bay SB	Ore Carrier	2	124,000	1978/80	65.0
Inland Steel	Bay SB	Ore Carrier	1	31,000	1976	17.0
National Steel	American SB	Ore Carrier	1	59,000	1978	45.0
Shell Oil	National Steel & SB	Crude Oil tankers	2	380,000	1978	134.0
673 Leasing	Sun SB & DD	RO/RO	1	14,180	1975	25.0
Standard Oil of Ohio	Avondale	Crude Oil Tankers	6	990,000	1977/79	400.0
Undisclosed	Sun SB & DD	Crude Oil Tanker	1	118,300	1976	32.0
<b>Total Private Contracts Awarded, FY 1975</b>			<b>18</b>	<b>2,140,480</b>		<b>\$906.8</b>

<sup>1</sup>Millions of dollars.**Table 2: NEW SHIPS DELIVERED FROM U.S. SHIPYARDS DURING FISCAL YEAR 1975**

Owner	Builder	Type	Vessels
<b>Subsidized</b>			
Aeron Marine Shipping	National Steel & SB	Crude Oil Tankers	3
Central Gulf	Avondale	LASH	3
Margate Shipping	National Steel & SB	Product Tankers	2
Prudential Lines	Avondale	LASH	2
Tyler Tanker	Seatrain SB	Crude Oil Tanker	1
Waterman	Avondale	LASH	1
<b>Total Subsidized Deliveries</b>			<b>12</b>
<b>Non-Subsidized</b>			
American Steamship	Bay SB	Bulk Carrier	1
Atlantic Richfield	Bethlehem (Sparrows Point)	Crude Oil Tanker	1
Cleveland Tankers	SBA Shipyards	Product Tanker	1
Kinsman Marine	American SB	Bulk Carrier	1
Marine Ship Leasing	Bath Iron Works	Product Tankers	4
Marine Ship Leasing	Todd (Los Angeles)	Product Tankers	3
Seabulk Tankers	Kelso Marine	Tug-Barge	1
Undisclosed	Sun SB & DD	Roll-on/Roll-off	1
<b>Total Non-Subsidized Deliveries</b>			<b>13</b>
<b>Total New Ships Delivered FY 1975</b>			<b>25</b>

<sup>1</sup>Conversion.

**Table 3: FEDERAL SHIP FINANCING GUARANTEE PROGRAM**  
 (Title XI) Principal Liability (Statutory Limit \$4.975 Billion), June 30, 1975

	Contracts In Force		Applications Pending	
	Vessels Covered	Principal Amount	Vessels Covered	Principal Amount
<b>Vessel Types</b>				
<b>Deepdraft Vessels:</b>				
Tankers	78	\$1,114,417,432	13	\$ 667,469,000
Cargo	170	824,764,540	3	87,330,000
LNGs	14	1,041,299,500	11	914,372,000
Bulk/OBOs	12	183,089,828	24	419,844,750
<b>Total</b>	<b>274</b>	<b>\$3,163,571,300</b>	<b>51</b>	<b>\$2,089,015,750</b>
<b>Other Types:</b>				
Ocean Tugs	67	\$ 138,963,776	25	\$ 77,020,614
Ocean Barges	64	178,806,502	18	53,407,711
River Tugs	31	30,293,496	25	39,580,823
River Barges	527	65,216,583	295	83,500,148
Drill Rigs/Ships	31	416,696,716	17	372,561,240
Drill Service	66	109,307,588	48	104,617,500
Miscellaneous	7	32,417,268	9	86,635,116
<b>Total</b>	<b>793</b>	<b>\$ 971,701,929</b>	<b>437</b>	<b>\$ 817,323,152</b>
<b>TOTAL VESSELS</b>	<b>1,067</b>	<b>4,135,273,229</b>	<b>488</b>	<b>2,906,338,902</b>
<b>SHIPBOARD LIGHTERS</b>	<b>2,138</b>	<b>\$ 78,183,798</b>	<b>575</b>	<b>\$ 28,946,938</b>
<b>TOTAL</b>		<b>\$4,213,457,027</b>		<b>\$2,935,285,840</b>



**Table 4: CAPITAL RESERVE FUNDS<sup>1</sup> JUNE 30, 1975**

Operators	Cash	Securities	Balance
American President Lines	\$ 8,854	\$ 4,142,800	\$ 4,151,654
Delta Steamship Lines	-0-	3,535,330	3,535,330
Farrell Lines	265,775	2,250,000	2,515,775
Pacific Far East Lines	520,923	-0-	520,923
States Steamship	936	\$ 3,285,385	3,286,321
<b>June 30, 1975 Balance</b>	<b>\$ 796,488</b>	<b>\$13,213,515</b>	<b>\$14,010,003</b>
June 30, 1974 Balance	1,048,207	21,104,539	22,152,746
<b>Decrease</b>	<b>\$ 251,719</b>	<b>\$ 7,891,024</b>	<b>\$ 8,142,743</b>

<sup>1</sup>Cash, approved interest bearing securities and common stocks under approved common stock trust on deposit in the statutory capital reserve funds of subsidized operators.

NOTE: All Special Reserve Funds have been closed. Capital Reserve Funds will be phased out as required by the Merchant Marine Act of 1970.

**Table 5: U.S. GREAT LAKES FLEET<sup>1</sup> JUNE 30, 1975**

	Vessels	Gross Registered Tons	Estimated Dwt.
<b>Total</b>	<b>185</b>	<b>1,613,416</b>	<b>2,678,411</b>
Bulk Carriers	161	1,533,902	2,609,561
Tankers	13	43,178	68,850
Others	11 <sup>2</sup>	36,336	3

<sup>1</sup>Self-propelled vessels of 1,000 gross registered tons and over.

<sup>2</sup>Includes railroad car ferries, auto ferries.

<sup>3</sup>Not available.

NOTE: Data supplied by the Lake Carriers Association.

**Table 6: U.S. OCEANBORNE FOREIGN TRADE COMMERCIAL CARGO CARRIED**

Calendar Year	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 <sup>1</sup>
<b>Tonnage (Millions)</b>										
Total-Tons	371.3	392.3	387.6	418.6	427.5	473.2	457.4	513.6	631.6	628.7
U.S.-Flag Tons	27.7	26.2	20.5	25.0	19.8	25.2	24.4	23.8	39.9	41.0
U.S. Percent of Total	7.5	6.7	5.3	6.0	4.6	5.3	5.3	4.6	6.3	6.5
Liner Total Tons	49.2	49.9	47.9	46.1	41.9	50.4	44.2	44.6	51.3	53.0
Liner U.S.-Flag Tons	11.2	11.4	10.6	11.1	9.7	11.8	10.1	9.8	13.2	15.6
Liner U.S. Percent	22.8	22.9	22.2	24.0	23.1	23.5	22.9	21.9	25.8	29.4
Non-Liner Total Tons	171.6	189.5	190.4	209.5	212.1	240.7	220.7	242.6	281.9	281.5
Non-Liner U.S.-Flag Tons	8.2	6.9	5.4	6.4	4.6	5.4	4.8	3.8	4.5	4.9
Non-Liner U.S. Percent	4.8	3.6	2.8	3.0	2.2	2.2	2.1	1.6	1.6	1.7
Tanker Total Tons	150.5	152.8	149.3	163.1	173.5	182.1	192.5	226.4	298.4	294.2
Tanker U.S.-Flag Tons	8.2	7.9	4.5	7.5	5.5	8.0	9.5	10.2	22.2	20.5
Tanker U.S. Percent	5.5	5.2	3.0	4.6	3.2	4.4	4.9	4.5	7.4	7.0
<b>Dollar Value (\$ billions)</b>										
Total Value	32.4	36.4	36.6	41.1	41.9	49.7	50.4	60.5	84.0	124.2
U.S.-Flag Value	6.9	8.2	7.9	8.5	8.1	10.3	9.9	11.1	15.9	22.1
U.S. Percent of Total	21.4	22.5	21.7	20.7	19.3	20.7	19.6	18.4	18.9	17.8
Liner Total Value	22.3	24.8	24.8	26.8	27.2	33.5	32.4	37.4	49.6	63.7
Liner U.S.-Flag Value	6.2	7.5	7.4	7.8	7.5	9.7	9.2	10.3	14.4	19.5
Liner U.S. Percent	27.8	30.4	29.8	29.0	27.6	28.8	28.4	27.7	29.1	30.6
Non-Liner Total Value	6.6	8.2	8.6	10.8	11.1	12.2	13.2	17.4	25.2	34.5
Non-Liner U.S.-Flag Value	.4	.4	.4	.5	.4	.4	.4	.4	.7	.8
Non-Liner U.S. Percent	6.3	4.9	4.5	4.6	3.6	3.3	3.1	2.4	2.5	2.3
Tanker Total Value	3.5	3.4	3.2	3.4	3.6	4.0	4.9	5.7	9.2	26.0
Tanker U.S.-Flag Value	.3	.3	.2	.2	.2	.2	.3	.4	.8	1.8
Tanker U.S. Percent	8.2	7.7	4.8	6.6	5.6	5.6	5.5	6.2	9.1	6.9

<sup>1</sup>Preliminary data subject to future revisions.

NOTE: Includes Government-sponsored cargo; excludes Department of Defense cargo and U.S./Canada translake cargo.

**Table 7: GOVERNMENT-SPONSORED CARGOES<sup>1</sup> CALENDAR YEAR 1974****Public Law 664 Cargoes:**

Shipper	Total Long Tons	U.S.-Flag Long Tons	Percentage U.S.-Flag
Action	26	23	87
Agency for International Development	3,607,796	1,271,182	35
Bonneville Power Administration	7,647	3,279	42
Department of Agriculture	1,378,583	692,849	50
Department of Commerce	42	35	83
Department of Health, Education & Welfare	64	61	95
Department of State	8,152	6,068	74
Drug Enforcement Administration	12	11	95
Ecological Survey	31	25	79
Environmental Protection Agency	12	11	95
Federal Aviation Agency	35	33	94
Federal Highway Administration	965	756	78
Inter-American Development Bank	20,844	5,754	28
International Exchange Service	195	193	97
National Aeronautics & Space Administration	497	401	81
Smithsonian Institution	50	39	78
Tennessee Valley Authority	1,810	1,161	64
U.S. Information Agency	5,010	4,181	83
U.S. Travel Service	189	173	92
Other	43	39	90

**Public Resolution 17 Cargoes:**

	Total Freight Revenue	U.S.-Flag Freight Revenue	Percentage U.S.-Flag
Export-Import Bank	\$192,000,259	\$154,690,621	81

<sup>1</sup>Civilian agencies.**Table 8: MARITIME MANPOWER DAILY AVERAGE EMPLOYMENT**

	Normal Daily Average	
	1974	1975
<b>Seafaring:</b>		
Shipboard Jobs	25,219	23,584
<b>Shipyard:<sup>1</sup></b>		
Production Workers	87,971	91,039
Management & Clerical	70,928	72,668
<b>Longshoremen</b>	17,043	18,371
	65,113	63,725

<sup>1</sup>Commercial yards able to construct ships 475 by 68 feet.

**Table 9: NATIONAL DEFENSE RESERVE FLEET JUNE 30, 1975**

Fleets	Retention	Scrap Candidates	Special Programs	Total
Beaumont, Tex.	46	12	3	61
James River, Va.	103	38	6	147
Mobile, Ala.	-	5 <sup>1</sup>	-	5
Suisun Bay, Calif.	125	78	3	206
<b>Total</b>	<b>274</b>	<b>133<sup>1</sup></b>	<b>12</b>	<b>419<sup>2</sup></b>

<sup>1</sup>Custody accountability of 5 Liberty ships transferred to the State of Alabama pending compliance with P.L. 92-402 (Artificial Fish Reef Program).

<sup>2</sup>Includes 124 vessels owned by the Navy Department, but excludes 4 ships sold for scrap but not delivered.

**Table 10: NATIONAL DEFENSE RESERVE FLEET 1945-1975**

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

**Table 11: MARINE AND WAR RISK INSURANCE APPROVED FY 1975**

Kind of Insurance	Total Amount	Percentage	
		American	Foreign
Marine Hull	\$2,694,128,000	71	29
Marine Protection and Indemnity	2,446,129,000	51	49
War Risk Hull	2,673,492,000	53	47
War Risk Protection and Indemnity	2,673,492,000	53	47



**Appendix I: SHIPS UNDER CDS JUNE 30, 1975**

Owner	Shipbuilder	Ship Type
<b>Undelivered Vessels Under Contracts Awarded in FY 1975:</b>		
Achilles Marine	Avondale	PT
Ajax Marine	Avondale	PT
United Shipping	Avondale	PT
Farrell	Avondale	CN
Moore-McCormack	Todd (San Pedro)	CN-p
Waterman	Norfolk SB & DD	F

**Total**

**Undelivered Vessels Under Contracts Awarded Prior to FY 1975:**

Boston Tankers, I	Todd (San Pedro)	PT
Boston Tankers, II	Todd (San Pedro)	PT
Boston Tankers, III	Todd (San Pedro)	PT
Boston Tankers, IV	Todd (San Pedro)	PT
Boston VLCC, II	Bethlehem (Sparrows Point)	COT
Boston VLCC, IV	Bethlehem (Sparrows Point)	COT
Boston VLCC VI	Bethlehem (Sparrows Point)	COT
Chestnut Shipping	National Steel & SB	COT
Cryogenic Energy Transport	General Dynamics	LNG
El Paso Arzew	Newport News SB & DD	LNG
El Paso Columbia	Avondale	LNG
El Paso Cove Point	Avondale	LNG
El Paso Gamma	Newport News SB & DD	LNG
El Paso Savannah	Avondale	LNG
El Paso Southern	Newport News SB&DD	LNG
Fillmore Tanker	Seatrain	COT
Gulf Oil	Bethlehem (Sparrows Point)	COT
Gulf Oil	Bethlehem (Sparrows Point)	COT
Liquegas Transport	General Dynamics Corp.	LNG
LNG Transport	General Dynamics Corp.	LNG
Moore-McCormack Bulk	National Steel SB	PT
Polk Tanker	Seatrain	COT
States Steamship	Bath Iron Works	RO/RO
States Steamship	Bath Iron Works	RO/RO
Third Group	National Steel & SB	COT
VLCC I	Newport News SB & DD	COT
VLCC II	Newport News SB & DD	COT
Zapata Ocean Carriers	Newport News SB & DD	COT

**Total**

**Total Ships Under CDS June 30, 1975**

\*Millions of dollars.

\*\*Thousands of dollars.

<sup>1</sup>Total contract cost including CDS and National Defense Features (NDF), but excluding engineering and change orders.

<sup>2</sup>Reconstruction.

<sup>3</sup>125,000 cubic meters.

Key to Ship Types: CN=containership, CN-p=partial containership, COT=crude oil tanker, F=freighter, LNG=liquefied natural gas carrier, PT=product tanker, RO/RO=roll-on/roll-off van-ship.

No. of Ships	Total Dwt.	Estimated Completion Date	Total Estimated Cost <sup>1*</sup>	Estimated CDS <sup>*</sup>	Estimated Cost NDF <sup>**</sup>
1	56,000	8-78	\$ 43.5	\$15.2	\$100
1	56,000	4-78	43.5	15.2	100
1	56,000	6-78	43.5	15.2	100
2 <sup>2</sup>	54,960	1-77	40.3	14.8	100
12 <sup>2</sup>	25,332	12-75	20.8	7.2	-0-
1 <sup>2</sup>	13,766	7-75	.8	.2	-0-
8	262,058		\$192.4	\$67.8	\$400
1	35,000	12-75	\$ 19.9	\$ 8.5	\$ -0-
1	35,000	3-76	19.9	8.5	-0-
1	35,000	6-76	19.9	8.5	-0-
1	35,000	9-76	19.9	8.5	-0-
1	265,000	8-75	71.2	30.6	133
1	265,000	9-75	71.2	30.6	133
1	265,000	2-76	71.2	30.6	133
2	179,400	1-77	65.7	21.9	120
1	63,600 <sup>3</sup>	11-76	89.6	21.2	20
1	63,460 <sup>3</sup>	10-77	96.8	24.8	17
1	63,170 <sup>3</sup>	3-77	106.0	17.5	20
1	63,170 <sup>3</sup>	3-78	100.0	16.5	20
1	63,460 <sup>3</sup>	4-78	94.2	24.1	18
1	63,170 <sup>3</sup>	9-77	103.0	17.0	20
1	63,460 <sup>3</sup>	5-77	106.6	27.3	17
1	225,000	11-78	70.6	28.8	63
1	265,000	12-76	81.6	33.3	151
1	265,000	7-76	81.6	33.3	151
1	63,600 <sup>3</sup>	2-78	89.6	21.2	20
1	63,600 <sup>3</sup>	5-77	89.6	21.2	20
3	114,900	1-77	65.1	22.8	165
1	225,000	12-75	62.9	27.0	57
3	58,629	8-76	114.1	48.7	729
1	19,543	12-76	35.3	14.1	204
4	358,800	8-76	112.8	41.0	240
1	390,770	2-78	139.7	54.1	66
1	390,770	7-78	138.2	53.5	58
1	390,770	1-79	136.6	52.9	59
36	4,389,272		\$2,272.8	\$748.0	\$2,634
44	4,665,096		\$2,465.2	\$815.8	\$3,034

## Appendix II: MARITIME SUBSIDY OUTLAYS

Fiscal Year	CDS	Reconstruction Subsidy	TOTAL	ODS	Total ODS & CDS
1936-1955	\$ 248,320,942 <sup>1</sup>	\$ 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	181,918,753	320,631,991
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	235,666,821	377,365,300
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	243,152,315	482,947,978
<b>Total</b>	<b>\$2,088,566,925</b>	<b>\$165,139,088</b>	<b>\$2,253,706,013</b>	<b>\$4,148,628,805</b>	<b>\$6,402,334,818</b>

<sup>1</sup>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 and 1955.

## Appendix III: SHIP DELIVERIES DURING FISCAL YEAR 1975 (TONNAGE IN THOUSANDS)

Country of Construction	Total All Types		Combination Pass. & Cargo		Freighters		Bulk Carriers		Tankers	
	No.	Dwt.	No.	Dwt.	No.	Dwt.	No.	Dwt.	No.	Dwt.
<b>Total</b>	<b>1,098</b>	<b>59,512</b>	<b>11</b>	<b>37</b>	<b>436</b>	<b>4,243</b>	<b>288</b>	<b>13,485</b>	<b>363</b>	<b>41,747</b>
United States	20	1,171	-	-	10	326	1	82	9	763
Denmark	29	2,034	2	5	13	71	7	360	7	1,598
France	19	1,982	-	-	7	60	1	158	11	1,765
Germany, East	29	309	-	-	28	286	1	23	-	-
Germany, West	58	3,877	1	4	19	156	15	831	23	2,887
Italy	19	1,702	-	-	3	52	7	532	9	1,118
Japan	498	31,283	2	5	145	1,427	167	6,200	184	23,651
Netherlands	40	1,408	-	-	19	60	3	10	18	1,339
Norway	44	1,568	-	-	13	70	5	234	26	1,264
Poland	39	700	1	5	30	281	8	413	-	-
Spain	55	2,808	1	4	24	196	20	957	10	1,652
Sweden	37	4,236	-	-	-	-	10	927	27	3,309
United Kingdom	40	2,145	1	2	22	328	10	730	7	1,085
U.S.S.R.	34	290	-	-	28	218	3	43	3	28
Yugoslavia	19	1,410	2	3	7	99	9	1,192	1	115
All Others	118	2,589	1	9	68	613	21	793	28	1,173

**Appendix IV: SHIP FINANCING GUARANTEES APPROVED IN FY 1975**

Number	Name or Type	Company	Amount Guaranteed
<b>Deepdraft Vessels:</b>			
2	Great Lakes Bulk Carrier	Interlake Steamship	\$ 76,800,000
1	MORMACDRACO <sup>1</sup>	Moore-McCormack	5,570,625
1	MORMACALTAIR <sup>1</sup>	Moore-McCormack	5,570,625
1	SAM LAUD	Whitney Steamship	9,904,950
1	AUSTRAL ENVOY <sup>1</sup>	Farrell Lines	10,760,000
1	AUSTRAL ENTENTE <sup>1</sup>	Farrell Lines	10,760,000
1	Tanker (56,000 dwt.)	United Shipping	23,717,000
1	Tanker (56,000 dwt.)	Ajax Marine	23,717,000
1	Tanker (56,000 dwt.)	Achilles Marine	23,717,000
<b>10<sup>2</sup></b>		<b>Total Deepdraft Vessels</b>	<b>\$190,517,200</b>
<b>Other Types:</b>			
Ocean:			
4	Flat Deck Barges	San Diego Transportation	\$ 7,211,362
5	4 Tows & 1 Barge	Moran Atlantic Towing	11,215,000
2	Tugs	Interstate Towing	1,671,000
2	Tugs	Tangier Marine Transport	1,315,000
2	Barges	Interstate Materials Transport	1,192,000
3	Barges	Interstate Marine Transport	4,330,000
30	17 Tugs & 13 Barges	San Diego Transportation	66,531,000
1	Barge	Hannah Inland Waterways	2,753,000
8	2 Tugs & 6 Barges	Pacific Inland Navigation	19,625,484
5	Tugs	McAllister Brothers	4,618,000
2	1 Tug & 1 Barge	Seabulk Chemical Carriers	18,074,875
<b>64</b>		<b>Total</b>	<b>\$138,536,721</b>
River:			
45	Hopper Barges	M/G Transport Services	\$ 41,637,324
75	Barges	Wisconsin Barge Line	8,540,000
3	Pushboats	Modern Boats	1,128,750
8	Barges	Canal Barge	3,025,000
30	5 Tows & 25 Barges	Ingram Barge	15,168,000
33	3 Tows & 30 Barges	Upper Mississippi Towing	10,191,000
<b>194</b>			<b>\$ 41,690,074</b>
Drill:			
3	2 Jackups & 1 Semi-sub.	Diamond M Drilling	\$ 53,185,000
8	Tug/Supply Vessels	OMS Limited Partnership #1	23,658,000
4	Semi-sub. Drill Vessels	Zapata Offshore	91,975,000
2	Tugs	Oceanographic & Seismic	4,746,000
2	Semi-sub. Drill Vessels	Marine Equipment Suppliers	33,000,000
4	2 Jackups & 2 Drill Barges	Atwood Oceanics	36,553,000
1	Tug	Gulf Overseas Marine	1,268,750
12	Tug/Supply	Offshore Logistics	28,155,246
3	Crewboats	F & S Offshore	6,719,000
4	Crewboats	Sweet Fleet	923,208
1	Semi-sub. Drill Vessel	Marlin Drilling	19,518,000
7	Crewboats	Bruce Boat Rentals	1,940,942
<b>51</b>			<b>\$301,642,146</b>

(Continued on page 70.)



Appendix IV (Continued)

Lighters:			
100	Steel Lighters	Pacific Far East Line	\$ 5,340,000
250	LASH Lighters	Prudential Lines	17,937,500
60	Steel Lighters	Pacific Far East Line	3,354,000
<b>410</b>			<b>\$ 26,631,500</b>
		<b>Total Other Types</b>	<b>\$508,500,441</b>
		<b>TOTAL GUARANTEED</b>	<b>\$699,017,641</b>

<sup>1</sup>Second mortgages.

<sup>2</sup>Includes 4 second mortgages

Appendix V: CAPITAL CONSTRUCTION FUND HOLDERS—JUNE 30, 1975

Aeron Marine Shipping	Coastal Barge Line	Gulf Atlantic Transport	Oceanic Partners
Alaska British Columbia Transportation	Crowley Maritime	Hannah Brothers	Oceanic Steamship
American Export Lines	Delta Steamship Lines	Hannah Inland Waterways	Ogden Bulk Transport
American Foreign Steamship	Ecological Shipping	Hannah Marine	Oglebay Norton
American Ship Building	El Paso Arzew Tanker	Hawaiian Tug & Barge	Overseas Bulktank
Aquarius Marine	El Paso Cove Point Tanker	Inland Steel	Pacific Lighting
Ashland Oil	El Paso Columbia Tanker	Intercontinental Bulktank	Pacific Towboat & Salvage
Atlantic Richfield	El Paso Gamma Tanker	Inter-Cities Navigation	Penn Navigation
Bankers Trust, N.Y.	El Paso Savannah Tanker	International Ocean Transport	Prudential Lines
Bethlehem Steel	El Paso Southern Tanker	Interstate Marine Transport	Robin Towing
Boblo	Erie Navigation	Interstate Materials Transport	Schmidt (O.L.) Barge Lines
Bultema Dock & Dredge	Exxon	Interstate Towing	Sun Oil
Campbell Towing	Farrell Lines	Luedtke Engineering	TTT
Central Gulf Lines	Ford Motor	Lykes Bros. Steamship	Union Oil of Calif.
Citimarlease (Burmah LNG Carrier)	Foss Alaska Line	Mogul Towing	United States Lines
Citimarlease (Burmah Liquigas)	Foss Launch and Tug	Nolty J. Theriot	United States Steel
Citimarlease (Fulton)	Fred Devine Diving & Salvage	Neuman Boat Line	United Tanker
Citimarlease (Whitney)	General American Transportation	National Gypsum	Victory Carriers
Clemens Ships	Globe Seaways	Moore-McCormack Resources	Young Brothers
Cleveland-Cliffs Iron	Great Lakes Towing	Ocean Tankships	Waterman Steamship

**Appendix VI: CONSTRUCTION RESERVE FUNDS—JUNE 30, 1975**

Company	Cash	Securities	Total
Central Gulf Steamship	\$ 1,000	\$ -0-	\$ 1,000
Crowley Derrick Barges <sup>1</sup>	33,451	847,831	881,282
National Marine Service	118,180	-0-	118,180
National Marine Service	-0-	66,572	66,572
NMS Chemical	-0-	446,008	446,008
Penn Export	2,159	362,000	364,159
Penn Navigation	15,919	642,000	657,919
Smith-Rice	-0-	135,000	135,000
Tank Barge 8	70,614	-0-	70,614
Kathleen Turecamo	3,605	-0-	3,605
Vincent C. Turecamo	2,922	142,000	144,922
Gulf Overseas Marine	-0-	200,000	200,000
<b>Total June 30, 1975</b>	<b>247,850</b>	<b>2,841,411</b>	<b>3,089,261</b>
<b>Total June 30, 1974</b>	<b>647,189</b>	<b>3,639,124</b>	<b>4,286,313</b>
<b>Net Increase (Decrease)</b>	<b>\$(399,339)</b>	<b>\$(797,713)</b>	<b>\$(1,197,052)</b>

<sup>1</sup>Name changed from Smith-Rice Derrick Barges, Inc.

**Appendix VII: U.S. OCEANGOING MERCHANT MARINE<sup>1</sup>—JUNE 30, 1975 (Tonnage in Thousands)**

	Privately Owned		Government-Owned		Total	
	Ships	Deadweight Tons	Ships	Deadweight Tons	Ships	Deadweight Tons
<b>Active Fleet:</b>						
Combo Pass./Cargo	6	50	0	0	<b>6</b>	50
Freighters	142	1,945	12	122	<b>154</b>	2,068
Bulk Carriers	15	405	0	0	<b>15</b>	405
Tankers	219	7,896	2	16	<b>221</b>	7,913
Intermodal	136	2,670	0	0	<b>136</b>	2,670
<b>Total Active Fleet</b>	<b>518</b>	<b>12,966</b>	<b>14<sup>2</sup></b>	<b>138</b>	<b>532</b>	<b>13,106</b>
<b>Inactive Fleet:</b>						
Combo Pass./Cargo	1	9	57	354	58	363
Freighters	20	245	203	2,054	223	2,299
Bulk Carriers	4	138	0	0	4	138
Tankers	28	1,114	30	406	58	1,520
Intermodal	12	137	4	47	16	184
<b>Total Inactive Fleet</b>	<b>65</b>	<b>1,643</b>	<b>294<sup>3</sup></b>	<b>2,861</b>	<b>359</b>	<b>4,504</b>
<b>Total</b>						
Combo Pass./Cargo	7	59	57	354	64	413
Freighters	162	2,190	215	2,176	377	4,366
Bulk Carriers	19	543	0	0	19	543
Tankers	247	9,011	32	422	279	9,433
Intermodal	148	2,807	4	47	152	2,854
<b>Total American Flag</b>	<b>583</b>	<b>14,610</b>	<b>308</b>	<b>2,999</b>	<b>891</b>	<b>17,609</b>

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

<sup>2</sup>Includes 4 vessels in bareboat charter and 14 vessels in custody of other U.S. Government agencies.

<sup>3</sup>National Defense Reserve Fleet consists of 290 vessels of which 60 are scrap candidates. Excluded are 124 vessels owned by the Navy Department which are in the custody of MarAd's Reserve Fleet.

NOTE: Tonnage figures may not be additive due to rounding.

**Appendix VIII: EMPLOYMENT OF U.S.-FLAG OCEANGOING MERCHANT FLEET<sup>1</sup>—JUNE 30, 1975**  
(Tonnage in Thousands)

Status and Area of Employment	Vessel Type							
	Total		Combination Pass./Cargo		Freighters		Tankers	
	No.	Dwt.	No.	Dwt.	No.	Dwt.	No.	Dwt.
<b>Grand Total</b>	<b>891</b>	<b>17,608</b>	<b>64</b>	<b>413</b>	<b>548</b>	<b>7,762</b>	<b>279</b>	<b>9,433</b>
<b>Active Vessels</b>	<b>532</b>	<b>13,105</b>	<b>6</b>	<b>50</b>	<b>305</b>	<b>5,142</b>	<b>221</b>	<b>7,913</b>
Foreign Trade <sup>2</sup>	260	5,834	5	43	218	3,806	37	1,985
Nearby Foreign	19	600	—	—	7	106	12	494
Great Lakes-Seaway Foreign	1	11	—	—	1	11	—	—
Overseas Foreign	240	5,223	5	43	210	3,689	25	1,491
Foreign to Foreign	7	370	—	—	5	52	2	318
Domestic Trade	205	5,687	1	7	48	825	156	4,855
Coastwise	153	4,653	—	—	17	354	136	4,299
Intercoastal	11	271	—	—	3	54	8	217
Noncontiguous	41	763	1	7	28	417	12	339
Other U.S. Agency Operations	60	1,214	—	—	34	459	26	755
MSC Charter	46	1,076	—	—	22	337	24	739
Bareboat & Other Custody	14	138	—	—	12	122	2	16
<b>Inactive Vessels</b>	<b>359</b>	<b>4,503</b>	<b>58</b>	<b>363</b>	<b>243</b>	<b>2,620</b>	<b>58</b>	<b>1,520</b>
Temporarily Inactive	35	852	1	9	21	353	13	490
Merchant Types	35	852	1	9	21	353	13	490
Military Types	—	—	—	—	—	—	—	—
National Defense Reserve Fleet <sup>3</sup>	290	2,789	57	354	206	2,088	27	347
Merchant Types	174	1,891	1	16	166	1,763	7	112
Military Types	116	898	56	338	40	325	20	235
Laid-Up (Privately Owned)	30	791	—	—	15	167	15	624
Laid-Up (MarAd-Owned, BB)	4	71	—	—	1	12	3	59

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

<sup>2</sup>Nearby Foreign includes Canada, Central America, West Indies, North Coast of South America, and Mexico.

<sup>3</sup>Excludes 124 vessels owned by the Navy Department which are in the custody of MarAd's Reserve Fleet.

**Appendix IX: MAJOR MERCHANT FLEETS OF THE WORLD<sup>1</sup>—JUNE 30, 1975**

	Ships	Rank by <sup>2</sup> No. Ships	Dwt. (thousands)	Rank by Dwt.
Liberia	2,491	1	125,308	1
Japan	2,033	3	60,720	2
United Kingdom	1,592	5	53,121	3
Norway	985	7	45,180	4
Greece	1,802	4	36,563	5
Panama	1,499	6	20,809	6
U.S.S.R.	2,375	2	17,758	7
France	436	14	17,740	8
Italy	630	8	15,427	9
United States (Privately Owned)	583	10	14,610	10
Germany (West)	620	9	12,948	11
Sweden	325	—	11,968	12
Netherlands	442	12	7,793	13
Spain	437	13	7,642	14
Denmark	314	—	6,997	15
All others <sup>3</sup>	6,027	—	76,085	—
<b>Total</b>	<b>22,591</b>		<b>530,669</b>	

<sup>1</sup>Oceangoing merchant ships of 1,000 gross tons and over.

<sup>2</sup>By number of ships, Cyprus ranks 11th with 575 vessels aggregating 4,839,000 dwt. and Singapore ranks 15th with 376 vessels totaling 6,295,000 dwt.

<sup>3</sup>Includes 308 United States Government-owned ships of 2,998,000 dwt.



**Appendix X: COMBINED CONDENSED FINANCIAL STATEMENTS OF SUBSIDIZED AND UNSUBSIDIZED OPERATORS<sup>1</sup>**

(See Notes)

**Statement A—Combined Condensed Balance Sheets December 31, 1974 (Amounts Stated in Thousand Dollars)**

	Subsidized	Unsubsidized	
		Tanker	Cargo
<b>Assets</b>			
Current Assets:			
Cash	\$ 66,701	\$ 52,644	\$ 9,104
Marketable Securities	80,179	4,489	27,982
Accounts Receivable	311,073	80,964	55,201
Other Current Assets	55,135	11,261	43,769
Total Current Assets	513,088	149,358	136,056
Special Funds and Deposits	156,740 <sup>2</sup>	49,900	11,155
Investments	37,340	24,104	14,512
Deferred ODS Receivable (See Contra)	10,100	—	—
Property and Equipment Less Depreciation:			
Vessels	931,046 <sup>1</sup>	343,047	258,265
Other Property and Equipment	125,576	2,373	47,425
Other Assets	60,282	23,579	3,573
Voyages in Progress-Net	—	9,165	7,441
<b>TOTAL ASSETS</b>	<b>\$1,834,172</b>	<b>\$601,886</b>	<b>\$478,427</b>
<b>Liabilities and Net Worth</b>			
Liabilities:			
Current Liabilities:			
Accounts and Notes Payable	\$ 217,596	\$ 45,442	\$ 52,173
Current Long-Term Debt	15,942	26,170	11,072
Other Current Liabilities	111,309	7,466	22,748
Total Current Liabilities	344,847	79,078	85,993
Voyages in Progress-Net	97,312	7,572	13,168
Long-Term Debt	532,137 <sup>2</sup>	275,980	165,211
Recapture ODS (See Contra)	7,480 <sup>4</sup>	—	—
Operating Reserves	46,290	2,063	26,142
Other Liabilities	52,194	44,093	26,465
Total Liabilities	1,080,260	408,786	316,979
Net Worth:			
Capital Stock	108,405	44,432	27,219
Surplus:			
Paid in Capital	216,830	50,487	130,941
Retained Earnings	428,677	98,181	3,288
Total Surplus	645,507	148,668	134,229
Total Net Worth	753,912 <sup>3</sup>	193,100	161,448
<b>TOTAL LIABILITIES AND NET WORTH</b>	<b>\$1,834,172</b>	<b>\$601,886</b>	<b>\$478,427</b>

**Appendix X: (Continued)**  
(See Notes)

**Statement B—Combined Condensed Income and Surplus Accounts Year Ended December 31, 1974 (Amounts Stated in Thousand Dollars)**

	Subsidized	Unsubsidized	
		Tanker	Cargo
Shipping Operations:			
Revenue:			
Terminated Voyages	\$1,410,544	\$197,337	\$315,772
Other Shipping Operations	10,849	4,485	8,796
Total Revenue	<u>1,421,393</u>	<u>201,822</u>	<u>324,568</u>
Expenses:			
Terminated Voyage Expense			
Wages, Payroll Taxes, Welfare Contributions	293,739	49,015	50,332
Subsistence	13,677	2,470	2,112
Maintenance and Repair	67,618	13,787	7,889
Insurance (Hull and P and I)	62,756	11,655	11,385
Total	<u>437,790</u>	<u>76,927</u>	<u>71,718</u>
Less: Operating-Differential Subsidy (ODS)	<u>226,680</u>	<u>-</u>	<u>-</u>
Total	211,110	76,927	71,718
Other Vessel Expense	285,675	26,562	51,665
Voyage Expense	571,356	25,150	127,819
Total Terminated Voyage Expense	1,068,141	128,639	251,202
Other Shipping Operations Expense:			
Overhead	119,466	9,571	30,009
Depreciation on Shipping Property	56,360	20,914	14,935
Other Miscellaneous Shipping Expenses	7,411	3,637	9,689
Total Expense	<u>1,251,378</u>	<u>162,761</u>	<u>305,835</u>
Gross Profit from Shipping Operations	170,015	39,061	18,733
Interest and Other Income	30,350	9,409	6,141
Interest and Other Deductions	( 56,622)	( 18,519)	( 11,599)
Net Profit from Shipping Operations	143,743	29,951	13,276
Non-Shipping Operations-Net Profit (Loss)	( 21)	( 8)	( 65)
Ordinary Income before Federal Income Taxes	143,722	29,943	13,341
Provisions for Federal Income Taxes	29,672	8,000	5,057
Ordinary Income After Taxes	114,050	21,943	8,284
Extraordinary and Prior Period Items:			
Extraordinary Items—Net Income (Net Expense)	993	310	-
Prior Period Items—Net Income (Net Expense)	-	( 389)	-
Federal Income Taxes Thereon (Net Expense)	5,938	-	-
Total	<u>6,931</u>	<u>( 79)</u>	<u>-</u>
Net Income (Loss)	120,981	21,864	8,284
Add: Paid in Capital and Retained Earnings			
Beginning of Year	537,041	127,804	129,900
Total Surplus Available	658,022	149,668	138,184
Surplus Changes:			
Cash Dividends	( 10,569)	( 1,000)	( 1,045)
Other (Net)	( 1,946)	-	( 5,000)
Total	<u>( 12,515)</u>	<u>( 1,000)</u>	<u>( 3,955)</u>
<b>Surplus (Capital and Earned) End of Year</b>	<b>\$ 645,507</b>	<b>\$148,668</b>	<b>\$134,229</b>

**Appendix X: (Continued) NOTES TO STATEMENTS A AND B**  
(Amounts Stated in Thousand Dollars)

<sup>1</sup>The data were obtained from Forms MA-172 filed by (1) 15 subsidized operators owning 170 vessels and chartering 11 others, (2) 35 unsubsidized tanker operators owning 50 tankers and one cargo vessel and chartering 4 tankers and (3) 9 unsubsidized cargo vessel operators owning 65 vessels and chartering 24 others. A few Forms MA-172 for unsubsidized operators cover 1974 fiscal years ending prior to December 31, 1974.

<sup>2</sup>\$483,754 of mortgage indebtedness included in the \$532,137 shown as the Long-Term Debt of subsidized operators is payable from Special Funds and Deposits.

<sup>3</sup>Income taxes in the amount of \$6,261 for the subsidized operators have been deferred for payment through accelerated depreciation and other tax shelter provisions of the Internal Revenue Code.

<sup>4</sup>Represents the Government's share of recapturable subsidy (ODS) deducted from subsidy payments pending settlement of completed 10-year subsidy recapture periods.

**Appendix XI: ODS ACCRUALS AND OUTLAYS—JANUARY 1, 1937 TO JUNE 30, 1975**

Calendar Year of Operation	Accruals			Outlays		Net Accrued Liability
	ODS	Recapture	Net Accrual	In FY 1975	Net ODS Paid	
1937-1955	\$ 682,457,954	\$157,632,946	\$ 524,825,008	\$ -0-	\$ 524,825,008	\$ -0-
1956-1960	751,430,098	63,755,409	687,674,689	-0-	687,674,689	-0-
1961	170,884,261	2,042,748	168,841,513	-0-	168,841,513	-0-
1962	179,759,006	4,929,404	174,829,602	28,774	174,498,999	330,603
1963	189,119,876	(1,415,917)	190,535,793	16,687	190,535,793	-0-
1964	220,334,818	674,506	219,660,312	2,401,212	219,660,312	-0-
1965	183,913,236	1,014,005	182,899,231	75,547	182,899,231	-0-
1966	202,734,069	3,229,471	199,504,598	(193,277)	199,504,598	-0-
1967	220,579,702	5,162,831	215,416,871	-0-	215,416,871	-0-
1968	222,763,009	3,673,790	219,089,219	-0-	219,089,219	-0-
1969	229,655,462	2,217,144	227,438,318	4,383,539	226,686,174	752,144
1970	232,885,080	(1,908,643)	234,793,723	3,635,650	226,215,363	8,578,360
1971	197,164,641	(2,821,259)	199,985,900	11,917,376	193,677,758	6,308,142
1972	197,887,320	-0-	197,887,320	7,569,639	183,026,924	14,860,396
1973	212,601,013	-0-	212,601,013	1,283,962	196,995,195	15,605,818
1974	232,055,783	-0-	232,055,783	114,018,257	199,786,286	32,269,497
1975 <sup>1</sup>	117,613,698	-0-	117,613,698	92,304,970	92,304,970	25,308,728
<b>Total Regular ODS</b>	<b>4,443,839,026</b>	<b>238,186,435</b>	<b>4,205,652,591</b>	<b>237,442,336</b>	<b>4,101,638,903</b>	<b>104,013,688</b>
Soviet Grain Program <sup>2</sup>	57,630,304	-0-	57,630,304	5,709,979	46,989,902	10,640,402
<b>Total ODS</b>	<b>\$4,501,469,330</b>	<b>\$238,186,435</b>	<b>\$4,263,282,895</b>	<b>\$243,152,315</b>	<b>\$4,148,628,805</b>	<b>\$114,654,090</b>

<sup>1</sup>January 1 through June 30.

<sup>2</sup>October 1, 1972 through June 30, 1975.

**Appendix XII: OPERATING-DIFFERENTIAL SUBSIDY ACCRUALS AND OUTLAYS BY LINES**  
**JANUARY 1, 1937 TO JUNE 30, 1975**

Lines	Accruals			ODS Paid	Net Accrued Liability
	ODS	Recapture	Net Accrual		
Aeron Marine Shipping	\$ 1,478,121	\$ -	\$ 1,478,121	\$ 388,263	\$ 1,089,858
American Banner Lines <sup>1</sup>	2,626,512	-	2,626,512	2,626,512	-
American Diamond Lines <sup>1</sup>	185,802	28,492	157,310	157,310	-
American Export Lines	597,971,986	10,700,587	587,271,399	572,210,643	15,060,756
American Mail Line <sup>2</sup>	163,527,048	7,424,902	156,102,146	148,122,770	7,979,376
American President Lines <sup>2</sup>	568,476,726	17,676,493	550,800,233	546,390,490	4,409,743
American Steamship	111,751	-	111,751	76,461	35,290
Aries Marine Shipping	2,293,350	-	2,293,350	1,817,129	476,221
Atlantic & Caribbean S/N <sup>1</sup>	63,209	45,496	17,713	17,713	-
Baltimore Steamship <sup>1</sup>	416,269	-	416,269	416,269	-
Bloomfield Steamship <sup>1</sup>	15,588,085	2,613,688	12,974,397	12,974,397	-
Delta Steamship Lines	170,847,373	8,185,313	162,662,060	155,439,544	7,222,516
Ecological Shipping	1,445,230	-	1,445,230	1,345,038	100,192
Farrell Lines	227,363,244	1,855,375	225,507,869	217,988,380	7,519,489
Prudential Lines <sup>3</sup>	441,216,094	24,223,564	416,992,530	403,785,524	13,207,006
Gulf & South American Steamship <sup>4</sup>	34,743,394	5,226,213	29,517,181	28,674,994	842,187
Lykes Bros. Steamship	536,625,973	52,050,599	484,575,374	467,130,153	17,445,221
Margate Shipping	2,817,727	-	2,817,727	1,994,413	823,314
Moore-McCormack Lines	446,649,695	17,762,445	428,887,250	425,709,939	3,177,311
N.Y. & Cuba Mail Steamship <sup>1</sup>	8,090,107	1,207,331	6,882,776	6,882,776	-
Oceanic Steamship <sup>5</sup>	111,414,111	1,171,756	110,242,355	109,733,612	508,743
Pacific Argentina Brazil Line <sup>1</sup>	7,963,939	270,701	7,693,238	7,693,238	-
Pacific Far East Line	229,501,419	23,479,204	206,022,215	189,909,363	16,112,852
Prudential Steamship <sup>1</sup>	26,098,640	1,680,796	24,417,844	24,417,844	-
Sea Shipping <sup>1</sup>	25,819,800	2,429,102	23,390,698	23,390,698	-
South Atlantic Steamship <sup>1</sup>	96,374	84,692	11,682	11,682	-
States Steamship	185,389,058	5,110,997	180,278,061	177,105,074	3,172,987
U.S. Lines <sup>6</sup>	584,187,406	54,958,689	529,228,717	529,228,717	-
Waterman Steamship	50,830,583	-	50,830,583	45,999,957	4,830,626
<b>Total Regular ODS</b>	<b>4,443,839,026</b>	<b>238,186,435</b>	<b>4,205,652,591</b>	<b>4,101,638,903</b>	<b>104,013,688</b>
Soviet Grain Program <sup>7</sup>	57,630,304	-	57,630,304	46,989,902	10,640,402
<b>Total ODS</b>	<b>\$4,501,469,330</b>	<b>\$238,186,435</b>	<b>\$4,263,282,895</b>	<b>\$4,148,628,805</b>	<b>\$114,654,090</b>

<sup>1</sup>No longer subsidized or combined with other subsidized lines.

<sup>2</sup>APL merged its operations with AML, October 10, 1973.

<sup>3</sup>Changed from Prudential-Grace Lines, Inc., August 1, 1974.

<sup>4</sup>Purchased by Lykes Bros. Steamship Co.

<sup>5</sup>Purchased by Pacific Far East Line, Inc.

<sup>6</sup>Ceased to be a subsidized line November 1970.

<sup>7</sup>Includes 42 subsidized operators.



**Appendix XIII: ODS CONTRACTS IN FORCE, JUNE 30, 1975**

Operator and Contract No.	Contract Duration	Number of Subsidized Ships	Service	Annual Sailings	
				Minimum	Maximum
<b>A. Liner Trades:</b>					
American Export Lines FMB-87	1-01-60	22	U.S. Atlantic/Mediterranean (T.R. 10)	76	102
	to		U.S. Atlantic/Far East (T.R. 12)	20	30
	12-31-79		U.S. Atlantic/India (T.R. 18)	24	29
American President Lines FMB-50	1-01-57	14	Trans-Pacific Service Freight (T.R. 29)	32	54
	to		Round-the-World (Westbound)	24 <sup>1</sup>	36
	12-31-76		Atlantic Straits (T.R. 17)	12 <sup>1</sup>	28
			CIP Feeder	-	(36)
Djakarta	-	(36)			
American President Lines for the American Mail Line Div. FMB-76	1-01-59	9	Trans-Pacific Service (T.R. 29)	54	80
	to 12-31-78				
Delta Steamship Lines FMB-63	1-01-58	12	U.S. Gulf/East Coast South America (T.R. 20)	43	Overall maximum not to exceed 79
	to 12-31-75		U.S. Gulf/West Africa (T.R. 14)	24	
MA/MSB-353	1-01-76 to 12-31-95				
Farrell Lines FMB-64	1-01-58	13	U.S. Atlantic/South & East Africa (T.R. 15-A)	20	30 (overall max. not to exceed 89)
	to 12-31-75		U.S. Atlantic/West Africa (T.R. 14-1)	20	
MA/MSB-352	1-01-76 to 12-31-95		U.S. Atlantic & Gulf/Australia (T.R. 16)	16	
Lykes Bros. Steamship FMB-49 <sup>2</sup>	1-01-58	41	U.S. Gulf/U.K.-Continent (T.R. 21)	24	84
	to		U.S. Gulf/Mediterranean (T.R. 13)	42	48
	12-31-77		U.S. Gulf/Far East (T.R. 22)	48	60
			U.S. Gulf/South & East Africa (T.R. 15-B)	18	24
			U.S. Gulf/West Coast South America (T.R. 31)	30	36
Moore-McCormack Lines MA/MSB-338	1-01-75	14	U.S. Atlantic/East Coast South America (T.R. 1)	50	86
	to 12-31-94		U.S. Atlantic/South & East Africa (T.R. 15-A)	20	30
Pacific Far East Line FMB-81	1-01-59	10	U.S. Pacific/Australia-Combination (T.R. 27)	12	16
	to		Freight (T.R. 27)	14	32
	12-31-78		California/Far East-Freight	20 <sup>3</sup>	36 <sup>3</sup>
Prudential Lines FMB-49	1-01-58	20	U.S. Atlantic/West Coast South America (T.R. 2)	48	62
	to		U.S. Pacific/South America, Caribbean, Central America and Mexico (T.R. 23, 24, 25)	25	42
	12-31-77		U.S. Atlantic/Caribbean (T.R. 4)	44 <sup>4</sup>	52 <sup>4</sup>
			U.S. North Atlantic/Mediterranean (T.R. 10)	41 <sup>5</sup>	50 <sup>5</sup>

(Continued on page 79.)

**Appendix XIII: (Continued)**

Operator and Contract No.	Contract Duration	Number of Subsidized Ships	Service	Annual Sailings	
				Minimum	Maximum
States Steamship FMB-62	1-01-58	9	Washington-Oregon/Far East (T.R. 29)	10	16
	to 12-31-77		Washington-Oregon-California/Far East (T.R. 29)	20	41
			California/Far East (T.R. 29)	22	38
Waterman Steamship MA/MSB-115	6-04-71 to 6-03-91	17	U.S. Atlantic-Gulf/India Pakistan, Persian Gulf and Red Sea (T.R. 18)	20	26
MA/MSB-138	5-08-72 to 11-07-75		U.S. Gulf/Far East (T.R. 22)	18	30
MA/MSB-253	4-23-73 to 4-22-76		U.S. Gulf/U.K.-Continent (T.R. 21)	20	35
<b>Total Liner Trades</b>		<b>181</b>		<b>911</b>	<b>1,371</b>

Operator	ODS Contract		Number of Subsidized Ships	Service	Annual Sailings	
	Number (Effective Date)	Termination Date			Minimum No. of Days	Maximum
<b>B. Bulk Trades:</b>						
Achilles Marine	MA/MSB-356 (6-30-75)	6	0	Worldwide Bulk	335	
Aeron Marine Shipping	MA/MSB-166 (6-30-72)	10-9-94	2	Worldwide Bulk	335	
Ajax Marine Shipping	MA/MSB-354 (6-30-75)	6	0	Worldwide Bulk	335	
American Shipping	MA/MSB-272 (6-26-73)	6	0	Worldwide Bulk	335	
Aquarius Marine	MA/MSB-309 (5-30-74)	6	1	Worldwide Bulk	335	
Aries Marine Shipping	MA/MSB-129 (6-30-71)	8-7-93	2	Worldwide Bulk	335	
Athena Marine Shipping	MA/MSB-355 (6-30-75)	6	0	Worldwide Bulk	335	
Atlas Marine Shipping	MA/MSB-274 (6-26-73)	6	0	Worldwide Bulk	335	
Chestnut Shipping	MA/MSB-299 (12-17-73)	6	0	Worldwide Bulk	335	
Ecological Shipping	MA/MSB-275 (6-15-73)	6-17-78	1	Worldwide Bulk	335	
Margate Shipping	MA/MSB-134 (1-4-72)	12-27-93	3	Worldwide Bulk	335	
Moore-McCormack Bulk	MA/MSB-295 (10-5-73)	6	0	Worldwide Bulk	335	
Pacific Shipping	MA/MSB-273 (6-26-73)	6	0	Worldwide Bulk	335	
Spruce Shipping	MA/MSB-310 (6-12-74)	6	0	Worldwide Bulk	335	

(Continued on page 80.)

**B. Bulk Trades:**

Operator	ODS Contract Number (Effective Date)	Termination Date	Number of Subsidized Ships	Service	Annual Sailings
					Minimum No. of Days
Worth Oil Transport	MA/MSB-271 (6-26-73)	<sup>6</sup>	0	Worldwide Bulk	335
Zapata Products Tankers	MA/MSB-167 (6-30-72)	<sup>6</sup>	0	Worldwide Bulk	335
<b>Total Bulk Trades</b>			<b>9</b>		

<sup>1</sup>American President Lines' combined minimum of 42 annual sailings on Round-the-World & T.R. 17 temporarily suspended; Round-the-World Service temporarily suspended; minimum of 20 Round-the-World and T.R. 17.

<sup>2</sup>Per Addendum No. 121 of Lykes Contract No. FMB-59 overall maximum not to exceed 246.

<sup>3</sup>Minimum of 36 and maximum of 54 on delivery of seventh and eighth new freight ships.

<sup>4</sup>Temporary minimum of 44 and maximum of 52 while three charter vessels are in operation.

<sup>5</sup>Increase to a minimum of 45 and maximum of 53 when 5 LASH vessels are assigned to service.

<sup>6</sup>20 years from the date of entry of the first vessel into its subsidized service.

**Appendix XIV: SOVIET GRAIN ODS CONTRACTS IN EFFECT—JUNE 30, 1975**

Company	Date Approved	Vessels
Academy Tankers	12-07-72	THOMAS Q THOMAS M
Amerada Hess	7-17-73	HESS BUNKER HESS PETROL HESS TRADER HESS VOYAGER
American Eagle Tanker	1-31-73	AMERICAN EAGLE
American Trading Transportation	12-14-72	VIRGINIA TRADER MARYLAND TRADER
Atlantic Richfield	10-07-74	SINCLAIR TEXAS ARCO PRUDHOE BAY ARCO ANCHORAGE
Blackships	2-07-73	GULFKING GULFQUEEN GULFPRINCE GULFKNIGHT
Connecticut Transport	11-24-72	CONNECTICUT
Chas. Kurz	11-22-72	JULESBURG TULLAHOMA SANDY LAKE BIRCH COULIE
	4-19-73	FORT FETTERMAN BALDBUTTE GAINES MILL MILL SPRING
Eagle Terminal Tankers	11-29-72	EAGLE CHARGER EAGLE LEADER EAGLE COURIER EAGLE TRANSPORTER
Empire Transport	3-09-73	POTOMAC
Globe Seaways	11-24-72	OVERSEAS ANCHORAGE
Hudson Waterways	11-28-72	TRANSERIE TRANSPANAMA TRANSUPERIOR

(Continued on page 81.)

**Appendix XIV: (Continued)**

Company	Date Approved	Vessels
Intercontinental Bulk tank	12-05-72	OVERSEAS ALASKA
International Ocean Transport	6-07-73	CANTIGNY CITIES SERVICE BALTIMORE BRADFORD ISLAND FORT HOSKINS CITIES SERVICE NORFOLK CITIES SERVICE MIAMI
James River Transport	3-09-73	JAMES
Keystone Shipping	11-22-72	PERRYVILLE
Keystone Tankship	11-22-72	KEYTANKER GOLDEN GATE
Manhattan Tankers	11-28-72	MANHATTAN
Mathiasen's Tanker Industries	12-13-72	PRAIRIE GROVE SOHIO INTREPID SOHIO RESOLUTE TAMPICO
Mohawk Shipping	3-09-73	MOHAWK
Monticello Tanker	4-17-73	MONTICELLO VICTORY
Montpelier Tanker	2-20-73	MONTPELIER VICTORY
Mount Vernon Tanker	12-18-72	MOUNT VERNON VICTORY
Mount Washington Tanker	12-18-72	MOUNT WASHINGTON
Nautilus Petroleum Carriers	1-05-73	SISTER KATINGO
Newport Tankers	3-05-73	ACHILLES
Ocean Clippers	1-22-73	OVERSEAS TRAVELER
Ocean Tankships	12-05-72 11-15-72	OVERSEAS VIVIAN OVERSEAS NATALIE
Ocean Transportation	11-24-72	OVERSEAS ALEUTIAN OVERSEAS ULLA
Ogden Merrimac Transport	3-09-73	MERRIMAC
Ogden Sea Transport	3-09-73	COLUMBIA OGDEN YUKON
Overseas Bulk tank	12-05-72	OVERSEAS ARCTIC
Overseas Oil Carriers	11-24-72	OVERSEAS JOYCE
Penn Tanker	1-03-73	OGDEN CHAMPION OGDEN CHALLENGER
Rio Grande Transport	3-09-73	YELLOWSTONE
Rye Marine	4-17-73	THETIS
Sea Tankers	1-22-73	OVERSEAS EVELYN OVERSEAS ROSE
Sea Transport	11-29-72	EAGLE TRAVELER EAGLE VOYAGER
Trans Eastern Shipping	11-28-72	TRANSEASTERN
Vancouver Steamship	12-19-72	VANTAGE HORIZON
Wabash Transport	11-24-72	OGDEN WABASH
Willamette Transport	11-24-72	OGDEN WILLAMETTE



**Appendix XV: APPROVALS FOR FOREIGN TRANSFERS—FY 1975<sup>1</sup>**

	Pursuant to Sections 9 and 37			Pursuant to Section 37 (Only)			Combined Totals		
	(U.S. owned and documented)			(U.S. owned, not U.S. documented)					
	No. of Vessels	Gross Tons	Average Age	No. of Vessels	Gross Tons	Average Age	No. of Vessels	Gross Tons	Average Age
<b>U.S. Privately Owned:</b>									
Tankers	14	181,484	29.0	8	672,038	31.0	22	853,522	29.0
Cargo	19	154,042	39.3	5	273,904	25.0	24	427,946	37.4
Cargo/Passenger	2	31,623	20.0	1	3,658	7.0	3	35,281	16.0
Miscellaneous	21	64,320	28.0	18	73,945	25.7	39	138,265	27.1
<b>Total</b>	<b>56</b>	<b>431,469</b>	<b>32.0</b>	<b>32</b>	<b>1,023,545</b>	<b>25.0</b>	<b>88</b>	<b>1,455,014</b>	<b>30.2</b>

**U.S. Government-Owned:**

Cargo (for scrapping)	2	11,464	29.5	7	45,160	30.4	9	56,624	30.1
Tankers (for scrapping)	—	—	—	6	35,856	30.3	6	35,856	30.3
<b>Total</b>	<b>2</b>	<b>11,464</b>	<b>29.5</b>	<b>13</b>	<b>81,016</b>	<b>30.3</b>	<b>15</b>	<b>92,480</b>	<b>30.2</b>

**Recapitulation by Nationality**

	Sections 9 and 37		Section 37 (Only)		Combined Totals	
	Number	Gross Tons	Number	Gross Tons	Number	Gross Tons
<b>U.S. Privately Owned Vessels Sold for Foreign Documentation:</b>						
Country of Registry						
Bahama Islands	—	—	1	3,851	1	3,851
Brazil	—	—	1	2,960	1	2,960
Canada	6	25,419	—	—	6	25,419
Cayman Islands	—	—	1	1,276	1	1,276
Colombia	—	—	1	3,800	1	3,800
Kuwait	—	—	1	180,000	1	180,000
Liberia	—	—	9	458,492	9	458,492
Mexico	1	1,600	—	—	1	1,600
Panama	24	189,127	9	161,572	33	350,699
Singapore	—	—	1	1,401	1	1,401
Venezuela	3	34,198	—	—	3	34,198
<b>Total</b>	<b>34</b>	<b>250,344</b>	<b>24</b>	<b>813,352</b>	<b>58</b>	<b>1,063,696</b>
Sale Alien for Scrap or Nontransportation	22	181,125	8	210,193	30	391,318
<b>Total Privately Owned</b>	<b>56</b>	<b>431,469</b>	<b>32</b>	<b>1,023,545</b>	<b>88</b>	<b>1,455,014</b>
<b>U.S. Government-Owned:</b>						
Freighters Sold for Scrapping	2	11,464	7	45,160	9	56,624
Tankers Sold for Scrapping	—	—	6	35,856	6	35,856
<b>Total Government-Owned</b>	<b>2</b>	<b>11,464</b>	<b>13</b>	<b>81,016</b>	<b>15</b>	<b>92,480</b>

<sup>1</sup>Vessels over 1,000 gross tons.

**Appendix XVI: RESEARCH AND DEVELOPMENT CONTRACTS AWARDED DURING FY 1975**

Project	Task	Vendor	Contract Number	Amount
<b>Competitive Shipbuilding:</b>				
One-Sided Welding	Develop one-sided welding techniques and equipment for application in field locations and aboard ship using existing manual, semi-automatic, and automatic welding processes.	Bethlehem Steel Corp. Sparrows Point, Md.	2-36214	\$140,500
Electroslag & Electrogas Welding	Conduct tests on steel samples in which electroslag and/or electrogas automated welding procedures were used to determine revised standards of acceptability for welds of these types.	Bethlehem Steel Corp. Sparrows Point, Md.	2-36214	28,702
Steel Improving & Welding	Formulate an industry research plan with particular emphasis on welding steel for low temperature service.	National Bureau of Standards Boulder, Colo.	400-58073	260,000
Automated Bending	Improve shipbuilding productivity and reduce costs by developing a machine to improve throughput of steel.	National Science Foundation Washington, D.C.	400-58065	50,000
Welding Methods	Develop new welding techniques and equipment adaptable to faster construction methods by increasing deposition rates, improving fit-up techniques, and using lasers.	Bethlehem Steel Corp. Sparrows Point, Md.	2-36214	295,000
Outfitting	Develop outfitting techniques to improve productivity and reduce labor and material costs associated with outfitting of ships, and develop a manual describing these techniques.	Todd Shipyards Corp. Seattle, Wash.	2-36233	340,000
Surface Preparation & Coating	Develop improved guidelines and procedures for ventilation of oxygen tanks and closed areas during abrasive blasting and painting.	Avondale Shipyards, Inc. New Orleans, La.	5-38071	102,156
Ship Producibility*	Initiate research in piping system material and production technology, ship structural standardization, streamlining ship design process, and analyze cost and production impacts of design changes. Produce design manuals or shipbuilding specifications and standards tailored to use by the ship design and shipbuilding industries.	Bath Iron Works Corp. Bath, Maine	3-36233	500,000
American Marine Standards*	Establish priorities for developing shipbuilding standards.	Bath Iron Works, Corp. Bath, Maine	3-36233	175,000
Automation Technology	Assess automation technology in shipbuilding.	National Science Foundation Washington, D.C.	400-58065	5,000
Shipyards Automation (REAPS)	Develop computer programs, seminars, software documentation, and technology related to computer aids to manufacturing in shipbuilding.	IITRI Chicago, Ill.	5-8072	397,050

\*Cost shared contract.

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**Appendix XVI:** (Continued)

Project	Task	Vendor	Contract Number	Amount
<b>Maintenance &amp; Repair</b>				
Underwater Hull Cleaning	Evaluate underwater cleaning and inspection techniques as a method of extending the period between drydockings.	Todd R&T Div. Galveston, Tex.	6562	\$ 60,000
Preventive Maintenance	Evaluate various preventive maintenance programs on-board selected ships.	Todd R&T Div. Galveston, Tex.	6562	30,000
Marine Coatings	Test and evaluate marine paint coatings.	Todd R&T Div. Galveston, Tex.	6562	30,000
Tank Barges*	Evaluate, through laboratory and field testing, the effectiveness of interim repairs to tank barges.	U.S. Coast Guard Washington, D.C.	400-58085	30,000
<b>Nuclear Ships</b>				
NSV Atomic Servant	Remove radioactive material from Atomic Servant for transfer back to AEC.	Todd R&T Div. Galveston, Tex.	6562	100,000
Nuclear Program Master Schedule	Develop a detailed plan and schedule for a competitive nuclear merchant ship program coordinating technical, economic and legislative activities.	NUS Corp. Rockville, Md.	5-37045	147,088
International Standards	Prepare charter for the development of nuclear marine standards for international applications.	Todd R&T Div. Galveston, Tex.	6562	40,000
Environmental Impact	Analyze the environmental impact of nuclear-powered merchant ships.	NUS Corp. Rockville, Md.	3-36273	36,624
Nuclear Power Plant*	Design a standardized 120,000 shp nuclear propulsion plant and obtain preliminary approval of regulatory groups.	Babcock & Wilcox Lynchburg, Va.	4-37067	1,596,158
Ship Systems Engineering	Develop contract plans and specifications for a nuclear-powered 400,000-to 600-000-ton ULCC.	Newport News Shipbuilding & Dry Dock Co. Newport News, Va.	5-38022	418,078
Quality Assurance	Develop a quality control requirement document for nuclear power plants which lists and classifies components and systems supplied by major participants in the program.	Todd R&T Div. Galveston, Tex.	6562	25,000
Consolidated Nuclear Steam Generator (CNSG)—Phase V*	Design a licensed nuclear power plant that can be provided by a fixed price procurement to U.S. ship operators and permits their competition with foreign operators on an equivalent required freight rate basis.	Babcock & Wilcox Lynchburg, Va.	4-37067	74,627
CNSG Flow Test	Design and develop a full scale flow model (cold) for the CNSG plant to forecast unacceptable flow induced vibration problems in the reactor core.	Todd R&T Div. Galveston, Tex.	6562	18,000
CNSG Hydrogen Suppression System	Measure explosion limits of three component systems at several initial pressures, temperatures, and relative humidities for hydrogen suppression tests.	Atlantic Research Corp. Alexandria, Va.	6562	118,508

\*Cost shared contract.

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**Appendix XVI:** (Continued)

Project	Task	Vendor	Contract Number	Amount
Licensing Assistance	Provide input to the Preliminary Safety Analysis Report and the Environmental Impact Statement on nuclear powered merchant ships.	Todd R&T Div. Galveston, Tex.	6562	\$ 60,000
Collision Planning	Develop a preliminary design for test apparatus to investigate collisions of nuclear merchant ships.	Todd R&T Div. Galveston, Tex.	6562	85,000
<b>Ship Machinery</b>				
Convertible Ship	Develop basic design concepts and economic data to evaluate effectiveness, practicality, and market potential of standardized convertible bulk commodity carriers 69,000-120,000 dwt. utilizing the industrial regenerative, heavy duty marine gas turbine propulsion system.	J.J. Henry, Inc. New York, N.Y.	5-38036	151,225
Marine Fossil Fuels	Assess present and future quantitative and qualitative requirements for marine fuels and evaluate the probable impact of selected social, economic, and political constraints on voyage costs and freight rates.	Tetra-Tech, Inc. Arlington, Va.	4-37121	22,894
Marine Boiler	Collect and analyze statistical and operational data to determine design criteria to be used in selecting marine boilers to increase reliability and to reduce maintenance.	Combustion Engineering Windsor, Conn.	5-38014	96,187
Gas Turbine Marine Boilers	Evaluate technical feasibility of applying gas turbine combustion technology to marine boilers to reduce boiler size and weight and improve combustion efficiency with particular emphasis on use of slurried fuels.	Hague International Corp. South Portland, Maine	5,38038	98,963
Reheat Steam Propulsion Plant	Analyze and evaluate an advanced reheat propulsion machinery system.	General Electric Corp. Lynn, Mass.	5-38068	97,150
OBO Operations Safety	Study cargo operations of ore/bulk/oil carriers to enhance their safe operation.	Southwest Research Corp. San Antonio, Tex.	5-38044	95,891
Planetary Marine Transmission*	Develop a family of compact, less expensive marine transmissions superior in performance and installation flexibility than those presently available.	Curtis Wright Woodridge, N.J.	3-36247	601,342
D-Cycle Marine Propulsion*	Evaluate the technical feasibility of applying the thermodynamic concepts of the D-cycle to marine steam propulsion systems.	D-Cycle Power Systems, Inc. Richmond, Va.	5-38059	83,500
Industrial Gas Turbine	Evaluate the technical and economic competitiveness of the reversing industrial gas turbine as opposed to the conventional steam turbine propulsion system for use in an LPG carrier.	J.J. Henry New York, N.Y.	5-38020	59,540

\*Cost shared contract.

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**Appendix XVI: (Continued)**

Project	Task	Vendor	Contract Number	Amount
<b>LNG</b>				
Liquid Sloshing in Tanks	Investigate impact loads and dynamic forces on LNG tank walls and structural members by liquid sloshing.	Southwest Research San Antonio, Tex.	3-36281	\$ 5,050
Cryogenic Research	Continue testing lower cost 5% nickel-steel for application to LNG containment systems and recommend standardized custody transfer systems for LNG ships.	National Bureau of Standards Boulder, Colo.	400-58074	150,000
<b>Pollution Control</b>				
Oil-Water Separator	Develop an effective shipboard oil-water separation system to prevent pollution.	AMF Beaird Shreveport, La.	MA-4152	23,775
Destator*	Test and evaluate at-sea performance of a device designed to dissipate electrostatic charges generated by tank cleaning equipment.	Cinco-Tech Corp. Los Angeles, Calif.	4-37065	96,838
Pollution Control & Prevention*	Review use of crude oil in washing oil cargo tanks and continue ocean sampling to assess background oil content.	Exxon Research Corp. Linden, N.J.	5-38000	108,000
Oil-Water Test Loop	Construct an oil-water monitor test and evaluation facility.	Todd R&T Div. Galveston, Tex.	6562	35,000
EIS—Test Loop	Develop a directory of environmental regulations of various agencies and required data for an environmental impact statement for the oil-water separator test loop.	Todd R&T Div. Galveston, Tex.	6562	50,000
Shoreside Pollution Control	Summarize regulations governing discharges from shoreside facilities which receive and treat shipyard oily wastes and recommend processes for MarAd facilities.	Todd R&T Div. Galveston, Tex.	6562	37,000
<b>Advanced Ship Systems</b>				
Domestic Feeder System*	Develop requirements for domestic feeder systems for barge carrying vessels.	Delta Steamship Co. New Orleans, La.	5-38075	105,224
Domestic Feeder System*	Develop requirements for domestic feeder systems for containerships.	Sea-Land Service, Inc. Edison, N.J.	5-38041	85,580
Fleet Forecast	Prepare a 25-year forecast of the size and characteristics of U.S. and world merchant fleets.	Temple, Barker & Sloane, Inc. Wellesley Hills, Mass.	5-38057	69,746
Offshore Industry	Determine the impact that growth of the offshore industry will have on the traditional maritime industries.	BDM Corp. Vienna, Va.	5-38024	164,892
Tug-Barge System	Develop an engineering system design of a tug-barge computer model.	George G. Sharp, Inc. New York, N.Y.	2-36285	16,502

\*Cost shared contract.

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**Appendix XVI:** (Continued)

Project	Task	Vendor	Contract Number	Amount
Industrial Plant Ships	Develop a design for a commercial, industrial plant ship which uses thermal power generated by ocean gradients.	Naval Sea Systems Command Arlington, Va.	400-5804	\$ 31,500
Ocean Thermal Plant Ships*	Determine the commercial feasibility of industrial plant ships obtaining energy from thermal gradients in the oceans.	Johns Hopkins University Silver Spring, Md.	5-38054	102,250
Neobulk Ship Design*	Design a vessel capable of providing neobulk services in competition with foreign-flag operators.	Bath Iron Works Corp. Bath, Maine	4-37096	148,000
<b>Hydrodynamics</b>				
Shallow Water Maneuvering Tests	Conduct model tests to determine the optimum powering and maneuvering design of large bulk vessels.	Hydronautics, Inc. Laurel, Md.	5-38074	255,000
<b>Marine Science</b>				
Environmental Monitoring & Sea Use Program*	Provide administrative services to the Sea Use Program, supporting the development of Cobb Seamount Station; environmental monitoring services; coordination of coastal zone questions; and development of the program as a demonstration project for use by regional ocean organizations.	National Oceanic and Atmospheric Administration Rockville, Md.	400-48062	10,000
Ship Routing Marine Advisories*	Improve marine advisories (meteorological and sea state data used to avoid excessive sea conditions) and optimum track ship routing.	Sea Use Foundation Seattle, Wash.	5-37040	86,238
Sea Use Council: Regional Oceanic Organization*	Provide administrative services for operating the Sea Use Council, a non-profit regional organization composed of the members of 10 U.S., State, and Canadian government agencies. The Council defines oceanic needs and coordinates research in meeting them.	National Oceanic and Atmospheric Administration Rockville, Md.	400-58083	10,000
Great Lakes Bulk Carriers*	Collect stress data from the M/V STEWARD J. CORT and SS CHARLES M. BEEGHLY to improve structural design criteria for large ships.	U.S. Coast Guard Washington, D.C.	400-58072	35,000
Skewed Propeller*	Test and evaluate a skewed propeller on a high speed container-ship, investigate the phenomena of cavitation erosion to verify and/or improve the propeller design, and develop an analytic capability to predict propeller life.	American Export Lines, Inc. New York, N.Y.	3-36288	32,000

\*Cost shared contract.

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**Appendix XVI:** (Continued)

Project	Task	Vendor	Contract Number	Amount
Ocean Wave Spectra	Conduct a cooperative U.S.-U.S.S.R. research study to acquire ocean wave spectra and corresponding ship loading data to yield a better understanding of ships' response in seas.	Teledyne Research Waltham, Mass.	5-38066	\$ 26,900
Flexible Linkage	Test models of four river barges linked together in a single line by semi-rigid connectors to verify the accuracy of a computer program to predict forces and stresses in barge connectors.	NSRDC Bethesda, Md.	400-58087	95,000
Ship Structure*	Investigate ship structural problems leading to basic improvements in maritime technology related to ship design, fabrication methods and materials. Also, continue stress instrumentation of an SL-7 container-ship.	U.S. Navy Washington, D.C.	400-58068	150,000
TRINSET	Test and evaluate on-line capability of DOT's TRINSET for future MRIS service to the maritime industry.	Department of Transportation Washington, D.C.	400-58079	5,000
Maritime Transportation Research Board (MTRB)*	Study importance of new research including metrification, nuclear ships, and effect of technology advancements on society.	National Academy of Sciences & Office of Naval Research Arlington, Va.	400-58078	125,000
Stress Instrumentation*	Instrument the M/V ROGER BLOUGH to determine structural response to Great Lakes sea conditions.	U.S. Steel Corp. Duluth, Minn.	5-38009	16,750
Ship Control	Increase operational efficiency and safety of containerships by reducing course ship roll and safe turnaround time in port.	Stevens Institute Hoboken, N.J.	5-38031	88,000
<b>Market Analysis</b>				
Shippers' Preference	Determine service factors that influence a shipper's choice of marine transportation services and develop a methodology that will estimate the market penetration that can be expected from changes in service factors.	Market Facts Chicago, Ill.	5-37044	93,000
Great Lakes-Overseas Market Assessment	Determine technical and financial feasibility of U.S.-flag operators penetrating the Great Lakes overseas transportation market.	Simat, Helliesen, & Eichner, Inc. Boston, Mass.	4-37124	168,104
Seaway Combination Vessel	Study the technical feasibility of developing a combination bulk/container/roll-on/roll-off carrier to transit the St. Lawrence Seaway.	Prairie Shipping Co. Chicago, Ill.	5-38032	150,000
Shipping Economics	Identify and recommend market strategies to improve competitiveness of U.S. merchant fleet.	J.R. McCaul & Assoc. Washington, D.C.		25,265
Competitive Practices	Evaluate performance of U.S. overseas shipping systems and suggest improvements.	Webb Institute Glen Cove, N.Y.		19,720

\*Cost shared contract.

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**Appendix XVI: (Continued)**

Project	Task	Vendor	Contract Number	Amount
<b>Marketing Assistance</b>				
Market Development Programs	Develop a model to measure the effectiveness of MarAd's market development program in the Eastern Region. Model will be used as a management tool by MarAd to evaluate its overall market development program.	Hayes & Associates New York, N.Y.	5-37049	\$ 30,000
Shipper Information	Provide profile information on major shippers classified by geographic location, commodities shipped, frequency, value of shipment, and other shipping and trade codings for input into shipper information system.	GRC Data New York, N.Y.	5-38004	9,317
Bulk Shipping Model	Employ a computerized model to analyze the movement of bulk commodities through U.S. ports.	Ernst & Ernst Washington, D.C.	4-37081	25,913
Foreign Trade Forecast	Develop a model to produce 5-year U.S. foreign trade forecasts to assist industry in developing its marketing and shipbuilding plans.	ECON, Inc. Princeton, N.J.	5-38060	102,844
Survey of U.S. Foreign Trade*	Obtain current data regarding outbound commodity flows from identifiable origins within the U.S. to foreign countries and inbound flows from foreign origins by transport modes.	Department of Transportation Washington, D.C.	400-58080	133,333
Bulk Shipping Requirements	Prepare reports on worldwide ocean bulk shipping and other requirements necessary to support MarAd programs.	Jones, Bardelmeier Nassau, Bahamas	4-37083	34,500
Bulk Movements	Analyze costs of bulk cargo movements, determine the cost per unit of bulk material, and incorporate these costs into other projects to improve competitiveness of U.S. merchant fleet.	Marine Management Systems Stamford, Conn.	3-36211	18,000
Cost Accounting	Revise prototype of cost report systems and provide software programming for MarAd's use in examining the financial viability of the maritime industry.	Peat, Marwick and Mitchell San Francisco, Calif.	3-36229	35,600
<b>Shipboard Automation</b>				
Integrated Conning System	Install a remote ship control mechanism which will permit the pilot or conning officer to alter speed and direction of the vessel from any point on the bridge through the use of a portable control unit.	American Export Lines, Inc. New York, N.Y.	4-37093	152,016
Hull Monitoring*	Develop, install and evaluate a hull status monitoring and surveillance system aboard a Lancer-class containership.	United States Lines, Inc. New York, N.Y.	4-37119	280,367

\*Cost shared contract.

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**Appendix XVI:** (Continued)

Project	Task	Vendor	Contract Number	Amount
Machinery Control	Initiate first phase system definition which will result in a preliminary specification for automated ship-board machinery modules.	Raytheon, Inc. Portsmouth, R.I.	5-38045	\$ 133,000
Direct Digital Steering	Continue developing the design for a computerized direct digital steering system for continuous all-weather steering of high-speed ships.	Webb Institute Glen Cove, N.Y.		50,000
Steering Control	Design a preliminary control system for continuous all-weather steering of high speed merchant ships to minimize course deviation error, engine wear, and increase propulsion efficiency.	Sperry Marine Systems Charlottesville, Va.	50628	94,598
Machinery Monitoring	Evaluate VIDEDEC on PRESIDENT JOHNSON, anti-stranding sonar on the DELTA NORTE, integrated conning system on the EXPORT FREEDOM, and hull surveillance on the AMERICAN LEGION.	McCarthy Marine Engineering Co. Roslyn, N.Y.	40586	40,345
In-Port Machinery Monitoring	Develop VIDEDEC software compatible for use in port.	Raytheon, Inc. Portsmouth, R.I.	50601	12,250
VIDEDEC Evaluation	Compare ship operating performance of VIDEDEC system on PRESIDENT JOHNSON and non-VIDEDEC sisterships.	American President Lines, Inc. San Francisco, Calif.	50594	10,000
Damage Warning Device	Develop specifications for a suitable heavy weather damage warning device that can be mass produced for installation on U.S. merchant ships.	Webb Institute Glen Cove, N.Y.	50597	30,000
Damage Warning System	Test and evaluate instruments designed to determine extent of heavy weather damage to ships.	Prudential Lines, Inc. New York, N.Y.	50634	44,273
Integrated Ship System*	Expand current cost/benefit analysis and evaluate the benefits that would occur through application of ISS concepts and ship automation to VLCCs.	Sperry Marine Systems, Inc. Charlottesville, Va.	5-38016	75,019
Shipboard Skills	Accumulate and evaluate operational data onboard three automated vessels (RO-RO, container, VLCC) by direct observation of shipboard operations; also investigate laws and regulations affecting automated vessel operations.	Stanwick Corp. Norfolk, Va.	0-35505	91,301
Automation Economics	Evaluate the costs and benefits of automated systems for merchant ships.	Purdue Lab. of Applied Industrial Control West Lafayette, Ind.	5-37028	99,572
Shipboard (M&R)	Develop and test a prototype shipboard unmanned engine from maintenance and repair system (M&R).	Pyramid Marine New Orleans, La.	5-38042	144,739

\*Cost shared contract.

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**Appendix XVI: (Continued)**

Project	Task	Vendor	Contract Number	Amount
<b>Navigation &amp; Communications</b>				
MF/HF Antenna	Design, fabricate and test an improved, vertical MF/HF ship antenna to meet existing regulatory requirements.	Collins Radio Richardson, Tex.	5-38007	\$ 96,340
Digital Selective Calling (DSC)	Procure and install an advanced HF teleprinter and error-correction equipment at a coastal station and onboard vessels to evaluate new international DSC standards.	RCA New York, N.Y.	5-38021	83,265
L-Band Antenna	Modify existing shipboard antennas and integrate L-Band transmitters/receivers into them to increase their capability to operate on the MARI-SAT system.	All Systems, Inc. Moorestown, N.J.	4-37040	20,400
Waterways Communications System*	Design, implement, test, and evaluate a highly automated shore-ship and office-office communication system for inland waterways operators.	Waterways Comm. Arlington, Va.	5-38051	500,000
Communications Support	Provide technical analysis and review of projects relating to selective calling.	Office of Telecommunications, Boulder, Colo.	400-58064	90,000
Radar Transponder*	Modify and test radar transponder that provides radar target identification, target enhancement communication of vital navigational data and short-range navigation capability. Develop technical specifications to design prototype transponder for operational tests.	Sperry Marine Systems, Inc. Charlottesville, Va.	5-38048	360,000
Distress Watch Capability*	Improve automated VHF system capability to automatically detect distress signals.	Lorain Electronics Lorain, Ohio	36280	27,800
Radio Frequency Management	Coordinate and obtain radio frequencies required for experimental and other MarAd radio operations.	National Oceanic and Atmospheric Administration Rockville, Md.	400-58069	10,035
Digital Selective Calling*	Develop and perform at-sea testing of selective calling devices which enable an unattended radio watch on ships, improve ship safety, and ship-to-coastal station calling.	G.T.E. Sylvania Mountain View, Calif.	3-36620	45,146
Nav/Comm Support*	Analyze satellite test data and develop advanced navigation testing plans.	NASA, Goddard Space Flight Center Greenbelt, Md.	400-58071	90,000
Fleet Management	Develop fleet management experiments with shipping companies and operate the Maritime Coordination Center (MCC) at Kings Point.	Marine Management System Stamford, Conn.	4-37062	300,000
Nav/Comm Support	Install and maintain ship satellite terminals, develop and provide interface elements on ships during tests, and maintain MCC.	Magnavox Torrence, Calif.	5-37039	436,195

\*Cost shared contract.

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**Appendix XVI: (Continued)**

Project	Task	Vendor	Contract Number	Amount
Advanced Engineering	Prepare a technical analysis of alternative navigation/communications systems, develop technical requirements for projects and assess systems for future applications to maritime problems.	Mitre Corp. McLean, Va.	5-38002	\$ 149,713
Maritime Satellite*	Provide ship equipment compatible with MARISAT's commercial satellite system on lease basis to conduct fleet management experiments.	Comsat General Washington, D.C.	5-38047	116,400
Integrated Navigation System*	Evaluate performance benefits of an automated ship navigation system. Also evaluate potential fuel and time savings.	Moore-McCormack Lines, Inc. Stamford, Conn.	5-38037	99,000
Maritime Satellite Support	Plan technical tests, operate and maintain satellite equipment at MCC and aboard two ships.	All Systems Inc. Morristown, N.J.	4-37071	70,526
<b>Shipping Operations Information System (SOIS)</b>				
Barge Controls*	Develop computer system for controlling barge-ship equipment.	Lykes Bros. Steamship Co., Inc. New Orleans, La.	5-38040	370,160
European Information System*	Design, develop, operate, and evaluate a computer-based international data communications capability, initially focusing on Europe.	United States Lines, Inc. New York, N.Y.	4-37053	99,500
Export Booking System*	Design, develop, implement, and evaluate an automated cargo booking and billing system to provide superior service in arranging cargo transportation.	American Export Lines, Inc. New York, N.Y.	4-37126	449,733
Cost Information System*	Design, develop, operate, and evaluate a computer-based system for control of international marine transportation costs.	Pacific Far East Line, Inc. San Francisco, Calif.	5-39046	350,000
Financial Retrieval System	Develop financial models for the maritime industry's on-going efforts to improve their financial and management operations.	Peat, Marwick & Mitchell Washington, D.C.	5-38034	132,814
Fleet Planning	Design, develop, and evaluate an automated cargo assignment and voyage analysis system to provide computer-aided cargo assignment, voyage analysis, and trade route simulation.	Prudential Lines, Inc. New York, N.Y.	5-37043	190,560
Shipping Management*	Develop a national shipping management system to include elements of cargo space documentation, intermodal distribution coordination, and fleet resource management service.	United States Lines, Inc. New York, N.Y.	4-37053	1,104,000
Container Identification*	Design, develop, test, and evaluate an automatic cargo identification system in conjunction with existing container services and provide improved ship/shore interface control of container movement to improve general logistics between ship and terminal.	Computer Identics Westwood, Mass.	3-36255	199,900

\*Cost shared contract.

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**Appendix XVI: (Continued)**

Project	Task	Vendor	Contract Number	Amount
Data Coding	Expand the Maritime Data Coding System to provide for automation of the existing manual system of processing, controlling, and coding the Maritime Vessel Utilization and Performance form.	Data Architects Waltham, Mass.	5-38029	\$ 82,209
SOIS Program Management	Provide program management services for the application of computer communications technology to U.S. ocean transportation.	Computer Sciences Falls Church, Va.	2-36238	52,095
<b>Ports &amp; Terminals</b>				
Emergency Berth Utilization	Develop an emergency berth utilization reporting system for all U.S. ports.	System Development Corp. Santa Monica, Calif.	5-38058	95,288
Regional Port Plan*	Optimize the development and utilization of port facilities in the San Francisco Bay area by developing a methodology to formulate a regional port plan.	Northern California Ports & Terminal Bureau, Inc. Oakland, Calif.	5-38001	61,000
River Level Fluctuation	Determine the effects of extreme river level fluctuations on the operations of the Port of St. Louis to formulate a universal guide for construction, expansion, and use of docks located on inland waterways.	East-West Gateway Coordinating Council St. Louis, Mo.	5-38011	85,500
<b>Fire Protection</b>				
Marine Fire Protection*	Establish a National Advisory Committee to assist and advise ports in marine fire protection procedures.	Washington State Coordinating Council Olympia, Wash.	4-37054	10,000
Marine Fire Protection System*	Implement and test a marine fire protection and pre-fire planning system.	Washington State Coordinating Council Olympia, Wash.	5-37031	236,056
<b>Cargo Handling</b>				
LASH Barges	Prepare LASH barge conceptual designs embodying improvements over current configurations.	Todd R&T Div. Galveston, Tex.	6562	50,000
LASH Barge Towing	Identify LASH barge towing problems, recommend solutions.	Todd R&T Div. Galveston, Tex.	6562	30,000
LASH Barge Improvement	Test and evaluate prototype LASH barge automobile transport platform.	Todd R&T Div. Galveston, Tex.	6562	48,883
Containership Loading	Organize and sequence the loading and discharge of liner ships in accordance with such criteria as stability, carrying capacity, and handling costs.	Hydronautics, Inc. Laurel, Md.	5-38023	48,451
Container-on-Deck System*	Develop an innovative "super cell" method of stowing containers on deck that minimizes container lashing operations and thus increases cargo handling productivity.	Matson Navigation Company San Francisco, Calif.	3-36292	69,267
Container Systems	Identify an alternative container system for industry application.	Todd R&T Div. Galveston, Tex.	6562	30,000

\*Cost shared contract.

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**Appendix XVI: (Continued)**

Project	Task	Vendor	Contract Number	Amount
Advanced Cargo Handling	Identify cargo systems requirements for application on U.S.-flag liner ships in the 1980s.	J.J. McMullen New York, N.Y.	5-38019	\$ 138,638
Slurry Technology*	Increase industry awareness and utilization of slurry technology through the development of demonstration projects involving the waterborne movement of key bulk commodities.	Marconaflo San Francisco, Calif.	5-38030	60,000
Refrigerated Container Sharing	Resolve basic economic issues in container resource sharing.	Manalytics, Inc. San Francisco, Calif.	4-37076	4,577
CAORF Operation	Manage and operate the CAORF simulator facility at NMRC, Kings Point.	Grumman Aircraft Corp. Woodbury, N.Y.	5-38003	1,049,964
CAORF Maintenance	Perform M&R, engineering, etc., for CAORF.	Sperry Marine Systems, Inc. Great Neck, N.Y.	5-38065	619,000
Restricted Waterways Operation	Develop preliminary port design factors to be incorporated into CAORF to reduce collision risks.	Science Applications Arlington, Va.	5-38056	64,829
Collision Avoidance Systems	Identify factors which contribute to ship collisions and develop certain maneuvering "rules of thumb" for collision avoidance, and concepts and standards on which to base improved collision avoidance systems.	Systems Control Inc. Palo Alto, Calif.	4-37130	145,000
Twin Screw Simulator	Develop twin screw simulation experiments for use in CAORF.	Sperry Systems Management Great Neck, N.Y.	5-38055	73,476
CAORF Support	Collect ocean science data for input into CAORF.	Oceanographic Systems of Sippican Corp. Marion, Mass.	52068	7,095
Ship Maneuvering	Develop design guides and computer data for CAORF by obtaining a more realistic understanding of maneuvering and control of ships.	Massachusetts Institute of Technology Cambridge, Mass.	5-38073	40,669
Maritime Operational Data Center (MODC)	Obtain foreign maritime vessel casualty reports for inclusion in CAORF.	Grumman Aircraft Corp. Bethpage, N.Y.	50631	50,471
MODC	Investigate the differences in U.S. and foreign vessel casualty rates to determine problem areas in order to reduce U.S. maritime hull casualty rates.	Aero Data, Inc. Sayosset, N.Y.	50598	27,977
<b>Miscellaneous</b>				
Arctic Ice Dynamics*	Conduct a large scale investigation of the nature and behavior of sea ice in the Arctic Ocean, specifically the Beaufort Sea.	National Science Foundation Washington, D.C.	400-58075	133,073
Fuel Conservation	Provide a master plan covering optimal industry-wide strategies to be followed under various assumptions regarding short and long-range availability of fuel oil.	Webb Institute Glen Cove, N.Y.	50596	75,000

\*Cost shared contract.

(Continued on page 95.)

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**Appendix XVI: (Continued)**

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Project	Task	Vendor	Contract Number	Amount
Licensed Officers	Increase ship officers' efficiency through assessment of skill levels and resistance to change.	Marine Index Bureau New York, N.Y.	50589	\$ 48,174
Unlicensed Seamen	Explore factors which affect the performance of unlicensed seamen.	Marine Index Bureau New York, N.Y.	50589	107,728
Maritime Research Information	Collect and disseminate information on maritime technology from all sources.	National Academy of Sciences Washington, D.C.	5-38005	179,340
Maritime Research Information	Abstract selected journals and publications for distribution to ship operators, builders, naval architects, engineers, etc.	Marine Information Company East Elmhurst, N.Y.	50588	13,728
Marine Standards Development	Establish a comparative marine data base resulting in a preliminary data bank on specific areas of regulated practices and/or standards.	Todd R&T Div. Galveston, Tex.	6562	60,000
Merchant Ship Naval Auxiliary Plan	Integrate Navy hardware components into commercial containerships to enable them to operate temporarily as at-sea replenishment auxiliaries.	M. Rosenblatt & Sons Hyattsville, Md.	5-37038	74,660
Productivity Conference	Conduct a conference to define productivity in the maritime industry, develop methods of improving productivity, and establish procedures to guide industry in implementing a voluntary productivity program.	A.T. Kearney Silver Springs, Md.	5-38049	52,259

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## Appendix XVII STUDIES AND REPORTS

The following studies or reports were released by the Maritime Administration during fiscal year 1975.

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 Superintendent of Documents, 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.

*Index of Current Regulations of the Maritime Administration, Maritime Subsidy Board, National Shipping Authority*, Revised as of January 1, 1975, 46pp, \$1.10 [GPO]

*Essential United States Foreign Trade Routes*, June 1975, 79pp, \$1.45 [GPO]

*MARAD 1974*, (Report of the Maritime Administration for fiscal year 1974), 106pp, \$1.90 [GPO]

*Inventory of American Intermodal Equipment*, 1975, 43pp, \$1.10 [GPO]

*Vessel Inventory Report*, December 31, 1974, 60pp, [MarAd]

*Foreign Flag Merchant Ships Owned by U.S. Patent Companies*, June 30, 1974, 54pp, \$1.55 [GPO]

*Containerized Cargo Statistics—Calendar Year 1973*, June 1975, 40pp, \$1.00 [MarAd]

*New Ship Construction—Deliveries and On Order and Under Construction* as of December 31, 1973, 13pp, [MarAd]

*Relative Cost of Shipbuilding in the Various Coastal Districts of the United States*, June 1974, 31pp, \$.45 [GPO]

*Assessment and Forecast of Marine Fuels Price and Availability*, prepared by Tetra-Tech, Inc., 119pp, \$7.25, COM-75-10543/AS [NTIS]

*Deck and Engine Officers in the U.S. Merchant Marine, Supply and Demand, 1974-1984*, prepared by MarAd, 79pp, COM-11430/AS, \$4.00 [NTIS]

*Draft Environmental Impact Statement, Maritime Administration Title XI Vessels Engaged in Offshore Oil and Gas Drilling Operations*, prepared by MarAd, 241pp, COM-74-10521, \$7.50 [NTIS]

*Foreign Maritime Aids*, prepared by Collett, Gatenby and Hatfield, Inc., 204pp, COM-74-10093, \$8.75 [NTIS]

*Issues of Financial Protection in Nuclear Merchant Ship Operations*, prepared by Atomic Industrial Forum, Inc., 95pp, COM-74-10531/AS, \$4.75 [NTIS]

*Management of a Seaport*, prepared by NMRC-KP, 593pp, COM-74-11786/AS, \$15.25 [NTIS]

*Marketing of Barge Carrying Vessel Services*, prepared by Webb Institute, 52 pp, COM-74-10752/AS, \$4.25 [NTIS]

*Market Environment and Container System Productivity*, prepared by NMRC-KP, 132 pp, COM-75-10764/AS, \$5.75 [NTIS]

*LNG Liquefaction Plants and Associated Shoreside Operations*, prepared by NMRC-KP, 133pp, COM-74-10469/AS, \$5.75 [NTIS]

*Maritime LNG Manual*, prepared by NMRC-KP, 320 pp, COM-74-10136/AS, \$9.50 [NTIS]

*U.S. Ocean Shipping Technology Forecast and Assessment*, prepared by United Aircraft Research Laboratories: [NTIS]

### Volume

1	Summary Report	COM-75-10001/AS	\$7.75
2	Technology Assessment	COM-75-10002/AS	\$9.25
3	State of Maritime Technology	COM-75-10003/AS	\$8.75
4	State of Society and Industry	COM-75-10004/AS	\$10.50
5	Impact Analysis and Policy Options	COM-75-10005/AS	\$10.50
6	Executive Summary	COM-75-10006/AS	\$3.75

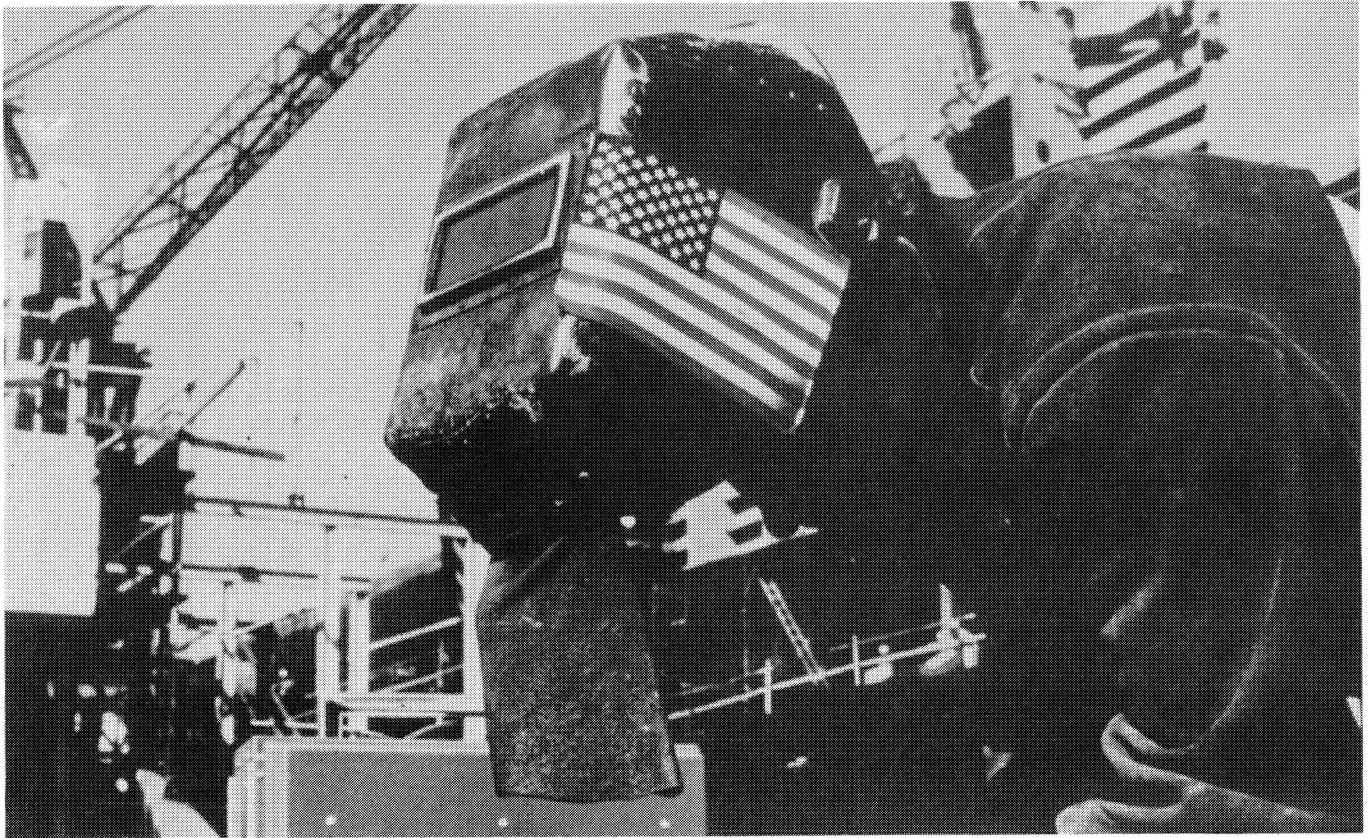
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ASSISTANT SECRETARIES OF COMMERCE FOR MARITIME AFFAIRS AND MARITIME ADMINISTRATORS

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	Tenure	
	Began	Ended
<b>Maritime Administrators:</b>		
E.L. Cochrane	Aug. 1, 1950	Oct. 1, 1952
Albert W. Gatov	Oct. 2, 1952	June 30, 1953
Louis S. Rothschild	July 1, 1953	Feb. 25, 1955
*Walter C. Ford	Feb. 26, 1955	Mar. 15, 1955
Clarence G. Morse	Mar. 16, 1955	May 1, 1960
*Walter C. Ford	May 2, 1960	June 30, 1960
Ralph E. Wilson	July 1, 1960	Feb. 22, 1961
Thomas E. Stakem	Feb. 23, 1961	Aug. 11, 1961
*Thomas E. Stakem	Aug. 12, 1961	Oct. 8, 1961
Donald W. Alexander	Oct. 9, 1961	Oct. 31, 1963
*Robert E. Giles	Nov. 1, 1963	Mar. 1, 1964
Nicholas Johnson	Mar. 2, 1964	June 30, 1966
*James W. Gulick	July 1, 1966	Mar. 24, 1969
Andrew E. Gibson	Mar. 25, 1969	1
<b>Assistant Secretaries for Maritime Affairs:</b>		
Andrew E. Gibson	Dec. 8, 1970	July 6, 1972
Robert J. Blackwell	July 7, 1972	Present

\*The position of Assistant Secretary of Commerce for Maritime Affairs (*ex officio* Maritime Administrator) was created on October 21, 1970.  
 \*Interim Appointee.



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## Acknowledgments

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The Maritime Administration acknowledges with appreciation the courtesy of the following in supplying photographs for this report.

American Export Lines, Inc.  
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Avondale Shipyards, Inc.  
Bath Iron Works Corp.  
Bay Shipbuilding Corp.  
Bethlehem Steel Corp.  
Delta Steamship Lines, Inc.  
Dravo Corp.  
General Dynamics, Quincy Shipbuilding Div.  
Keystone Shipping Co.  
Lykes Bros. Steamship Co.  
National Steel & Shipbuilding Co.  
Port of Corpus Christi  
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Port of Seattle  
Sea-Land Service, Inc.  
Shipbuilders Council of America  
Seatrains Shipbuilding Corp.  
Sun Oil Co.  
*The Waterways Journal*

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