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U.S. Maritime Administration (MARAD) Shipping and Shipbuilding Support Programs

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U.S. Maritime Administration (MARAD) Shipping and Shipbuilding Support Programs

The U.S. Maritime Administration (MARAD) is one of the 11 operating administrations of the U.S. Department of Transportation (DOT). Its mission is to develop the merchant maritime industry of the United States. U.S. maritime policy, largely set out by the Merchant Marine Acts of 1920 and 1936 and with some roots in even older legislation, is codified in Subtitle V of Chapter 46 of the *U.S. Code*. As currently articulated, it is the policy of the United States to “encourage and aid the development and maintenance of a merchant marine” that meets the objectives below, which MARAD helps to achieve via the following programs and activities:

- **Carry domestic waterborne commerce and a substantial part of the waterborne export and import foreign commerce of the United States.** International shipping is dominated by companies using foreign-owned or foreign-registered vessels taking advantage of comparatively lower operating costs. The MARAD Maritime Security Program (MSP) supports U.S.-flagged ships engaged in international commerce by providing annual subsidies to defray the operating costs of up to 60 vessels. Originally scheduled to expire at the end of 2025, authorization for MSP was extended through 2035 by the National Defense Authorization Act (NDAA) for Fiscal Year 2020 (P.L. 116-92). Similar programs were established to support tankers and cable-laying ships, either in that same law or in the NDAA for Fiscal Year 2021 (P.L. 116-283). MARAD does not subsidize the operations of vessels in purely domestic shipping, since that industry is closed to foreign competition by the Jones Act, but MARAD oversees the Marine Highway Program, which supports short-sea shipping and inland waterway port upgrades.
- **Serve as a naval and military auxiliary in time of war or national emergency.** MARAD owns and maintains approximately 100 vessels in the National Defense Reserve Fleet (NDRF), including a subset called the Ready Reserve Force that is intended to mobilize within days, to supplement the U.S. Navy’s Military Sealift Command. The advanced age of many NDRF vessels presents rising maintenance costs, as well as problems crewing vessels built to outdated specifications. The type of ships in the NDRF may not always align with the military’s needs, and the ability of the military to wage war may be less dependent on oceangoing vessels than it was when the NDRF was established in the aftermath of World War II, but NDRF vessels have supported overseas operations as recently as 2014 in West Africa and the Middle East.
- **Be owned and operated as vessels of the United States by citizens of the United States.** MSP operating subsidies offset competitive disadvantages facing ship owners who register their vessels in the United States. Previous iterations of the program committed to a steady subsidy over 20 years. Subsidy amounts have been subject to the annual appropriations process since 1996, but this has not dampened interest in the program. Congress has considered bills that would subsidize additional ships of specific types, such as tankers and submarine cable-layers. The FY2020 NDAA established a two-vessel Cable Security Program similar to MSP.
- **Use vessels constructed in the United States and manned with trained and efficient citizen personnel.** The Maritime Guaranteed Loan program, also known as Title XI, may issue or guarantee loans for ship construction in domestic shipyards at favorable borrowing costs. To maintain the existence of a pool of trained personnel, MARAD provides financial support for the federal U.S. Merchant Marine Academy and six state maritime academies. A shortage of mariners could threaten the capability to mobilize reserve fleets in times of war, but a shortage of shipboard positions would make it difficult to employ the necessary number of mariners during peacetime. MARAD is in the process of procuring new training ships for the state academies, whose current ships are insufficient to meet current training needs.
- **Be supplemented by efficient facilities for building and repairing vessels.** In 1993, eligibility for Title XI loans was expanded to include modernization of shipyards, and a discretionary grant program distributes funds to small shipyards.

MARAD supports other aspects of the maritime freight industry such as port infrastructure and ship disposal. The Port Infrastructure Development (PID) grant program, established in 2009, has distributed millions of dollars to landside port improvements in recent years, but may be duplicative with other DOT grant programs. MARAD’s ship disposal program is responsible for retiring a backlog of aging NDRF vessels and preparing the experimental nuclear-powered cargo ship *Savannah* for safe disposal or conversion into a museum ship.

Contents

| | |
|---|----|
| Background | 1 |
| Shipbuilding Assistance | 3 |
| Maritime Guaranteed Loan Program (“Title XI” Loans) | 3 |
| Assistance to Small Shipyards | 5 |
| Capital Construction Funds | 5 |
| Operating Assistance | 6 |
| Maritime Security Fleet..... | 6 |
| National Defense Reserve Fleet | 9 |
| Cargo Preference | 9 |
| Other Support Programs | 10 |
| Merchant Marine Training | 10 |
| Port Infrastructure Development Grants | 13 |
| Marine Highways | 13 |
| Ship Disposal | 14 |
| The Nuclear Ship <i>Savannah</i> | 15 |

Figures

| | |
|---|----|
| Figure 1. MARAD Funding by Program and Full-Time Equivalent Employment, FY2015-FY2021 | 2 |
| Figure 2. Authorized Maritime Security Program Stipend per Vessel, FY1996-FY2035 | 7 |
| Figure 3. America’s Marine Highway Routes | 14 |
| Figure 4. Obsolete NDRF Vessels Removed for Disposal, FY2007-FY2019 | 15 |

Tables

| | |
|---|----|
| Table 1. National Maritime Policy Objectives and Corresponding MARAD Programs | 1 |
| Table A-1. Title XI Funding, Applications Approved, Loan Guarantee Amounts Approved, and Guaranteed Loan Amounts Outstanding, FY2000-FY2020 | 16 |
| Table A-2. Assistance to Small Shipyards Authorizations and Appropriations, FY2006-FY2020..... | 17 |
| Table A-3. MARAD Funding by Program and Full-Time Equivalent Employment, FY2015-FY2020 | 18 |

Appendixes

| | |
|--------------------------------|----|
| Appendix. Additional Data..... | 16 |
|--------------------------------|----|

Contacts

Author Information..... 18

Background

The U.S. Maritime Administration (MARAD) is one of the 11 operating administrations of the U.S. Department of Transportation (DOT). Its mission is to develop the merchant maritime industry of the United States.¹ Created in 1950 within the Commerce Department, MARAD did not join DOT until 1981.² It differs from most other modal agencies within DOT in that its mission explicitly encompasses support of a domestic industry, rather than purely safety enforcement or grantmaking.

U.S. maritime policy, largely set out by the Merchant Marine Acts of 1920 and 1936 and with some roots in even older legislation, is codified in Subtitle V of Chapter 46 of the *U.S. Code*. As currently articulated, it is the policy of the United States to “encourage and aid the development and maintenance of a merchant marine” that meets stated objectives (**Table 1**). MARAD’s principal role is to perform various functions that, in the determination of Congress, support achievement of those objectives.

Table 1. National Maritime Policy Objectives and Corresponding MARAD Programs

| Objectives (“A merchant marine that is ...”) | MARAD support |
|--|--|
| (1) sufficient to carry the waterborne domestic commerce and a substantial part of the waterborne export and import foreign commerce of the United States and to provide shipping service essential for maintaining the flow of the waterborne domestic and foreign commerce at all times; | Maritime, Tanker, and Cable Security Programs subsidize U.S.-flagged ships engaged in oceangoing commerce; Marine Highway Program funds short-sea shipping and inland waterway port upgrades |
| (2) capable of serving as a naval and military auxiliary in time of war or national emergency; | Maintenance of the National Defense Reserve Fleet, including the Ready Reserve Force, to supplement the U.S. Navy’s Military Sealift Command |
| (3) owned and operated as vessels of the United States by citizens of the United States; | Maritime Security Program offsets competitive disadvantages facing ship owners engaged in international trade who register their vessels in the United States |
| (4) composed of the best-equipped, safest, and most suitable types of vessels constructed in the United States and manned with a trained and efficient citizen personnel; and | Title XI loans for ship construction; grants to the U.S. Merchant Marine Academy and state maritime academies |
| (5) supplemented by efficient facilities for building and repairing vessels. | Title XI loans for shipyard modernization; grants to small shipyards; management of tax-exempt Capital Construction Funds |

Sources: Objectives from 46 U.S.C. §50101; MARAD programs compiled by CRS.

Note: To fly the U.S. flag, a vessel must satisfy certain ownership and operational requirements.

The promotional maritime statutes of the United States primarily address national security and defense, not economic need or efficiency. Furthermore, while some of MARAD’s support—such as for deep-sea shipping in international trade—is connected to its military auxiliary role, not all aspects of the merchant marine are of military value. MARAD’s support for other types of maritime activities, such as coastwise and Great Lakes shipping and barge transport on inland waterways, is primarily in the service of its other goals.

¹ 49 U.S.C. §109(a).

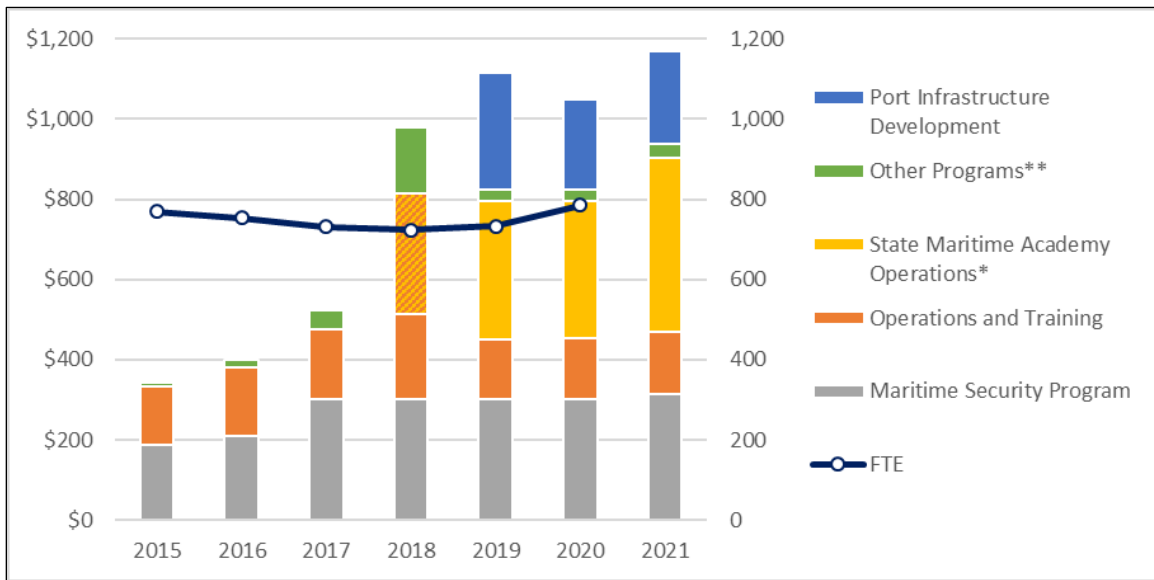
² P.L. 97-31.

Some of the federal government’s most prominent maritime activities are not MARAD responsibilities. It does not administer the Harbor Maintenance Trust Fund, which supports maintenance and deepening of harbors and channels, or the Inland Waterways Trust Fund, which funds locks and channels on inland waterways; both of these activities fall within the jurisdiction of the U.S. Army Corps of Engineers.³ Nor does MARAD enforce the Jones Act, the law requiring that vessels transporting cargo from one U.S. point to another U.S. point be U.S.-built and owned and crewed by U.S. citizens; the Jones Act falls within the jurisdiction of the U.S. Coast Guard and U.S. Customs and Border Protection (CBP), with MARAD’s role limited to verifying whether Jones Act-qualified vessels are available when CBP receives a request to waive Jones Act requirements.⁴

MARAD’s budget has increased in recent years, but this can be largely attributed to the cost of replacing training ships for the state maritime academies and to the appropriation of funds for Port Infrastructure Development grants (see **Figure 1**). Even taking these increases into account, MARAD activities constitute little more than 1% of the overall DOT budget.

Figure 1. MARAD Funding by Program and Full-Time Equivalent Employment, FY2015-FY2021

in millions of nominal dollars (left axis) and full-time equivalents (FTE, right axis)



Source: U.S. DOT, MARAD Budget Estimates, FY2016-FY2021; congress.gov.

Notes: FY2020 funding reflects amounts appropriated as of February 2020 and does not include any COVID-19 emergency relief appropriations. FY2021 funding reflects amounts appropriated as of December 2020.

* Prior to FY2019, State Maritime Academy Operations were funded out of Operations and Training. The shaded portion in FY2018 corresponds to funds appropriated for the purchase of new training ships.

** Includes the Cable Security Fleet, Assistance to Small Shipyards, Ship Disposal, and Maritime Guaranteed Loan (Title XI) programs.

MARAD employs just under 800 full-time equivalents (FTEs), roughly two-thirds of which are directly funded by MARAD, including approximately 300 at the U.S. Merchant Marine Academy.

³ CRS Report R43222, *Harbor Maintenance Finance and Funding*, by John Frittelli; CRS Report R43101, *Inland Waterways: Financing and Management Options in Federal Studies*, by John Frittelli.

⁴ The Jones Act refers to Section 27 of the Merchant Marine Act of 1920 (P.L. 66-261). See CRS Report R45725, *Shipping Under the Jones Act: Legislative and Regulatory Background*, by John Frittelli.

Funding for the remaining FTEs is reimbursable by other agencies, notably the Department of Defense (DOD), which reimburses funding for the approximately 250 FTEs attached to the Ready Reserve Force of the National Defense Reserve Fleet. The size of MARAD's workforce has fluctuated only slightly year over year even as the agency's funding has increased. Much of that increase can be attributed to shipbuilding contracts at private shipyards and infrastructure grants to port authorities, execution of which may not require new MARAD staff.

Shipbuilding Assistance

Maritime Guaranteed Loan Program ("Title XI" Loans)

The Maritime Guaranteed Loan Program provides federal loan guarantees to vessel operators to construct vessels in U.S. shipyards, and to modernize those shipyards. It was created by the Merchant Marine Act of 1936, and is more commonly referred to by the specific section of the law creating it—Title XI. However, the program as currently configured dates to 1993, when it was reformed to comply with requirements of the Federal Credit Reform Act of 1990.⁵

The comparatively high cost of building ships in the United States relative to other countries discourages commercial operators from ordering vessels from U.S. shipyards, except when they are required to use U.S.-built vessels to engage in domestic trade. U.S. shipyards enjoy few economies of scale in building containerships and tankers due to the low volume of construction. Also, oceangoing vessels built in U.S. shipyards tend to be significantly smaller than similar vessels built abroad, as only a modest amount of domestic cargo is shipped by sea. Together, China, South Korea, and Japan account for over 90% of all ship production in terms of cargo-carrying capacity.⁶ In general, shipbuilding is highly subsidized, as governments consider it an important source of employment not only in shipyards, but also in supplier industries such as steelmaking.⁷

Under Title XI, MARAD offers loan guarantees intended to make domestic shipbuilding more attractive to vessel buyers. These guarantees permit both vessel buyers and shipyards to obtain financing on more favorable terms than would otherwise be made available by a commercial lender, offsetting the comparatively high costs of shipbuilding in the United States. A single guarantee may support the construction of more than one vessel. In return, MARAD collects a one-time fee equal to between 0.5% and 1.0% of the principal outstanding balance. Given the costs associated with shipbuilding, these fees can reach into the millions of dollars, and can be financed alongside the loan itself.

A wave of loan defaults during the 1980s prompted a reorganization of the program with a greater emphasis on creditworthiness. Congress appropriated new funds to underwrite guarantee subsidy costs during the 1990s. MARAD approved \$1.4 billion in loan guarantees in 1998, the peak year. In 2001, a company that received \$1.2 billion in loan guarantees to build two U.S.-flagged cruise ships went bankrupt, sending the loans into default. The economic downturn that followed the September 11, 2001, terrorist attacks was accompanied by additional loan defaults, and MARAD struggled to recover assets to offset payouts to creditors.

⁵ For more information about federal credit programs, see CRS Report R44193, *Federal Credit Programs: Comparing Fair Value and the Federal Credit Reform Act (FCRA)*, by Raj Gnanarajah.

⁶ Organisation for Economic Cooperation and Development, "Shipbuilding Market Developments: Q2 2018."

⁷ United Nations Conference on Trade and Development (UNCTAD), *Review of Maritime Transport 2019*, October 30, 2019, p. 30, at https://unctad.org/en/PublicationsLibrary/rmt2019_en.pdf.

Since then, MARAD's credit assistance has been far more limited. Over the past decade, MARAD has approved seven Title XI loan guarantees for a total amount of \$1.9 billion, supporting the construction of 19 vessels. MARAD has received few applications to build certain types of vessels most needed by the military, such as ships with truck ramps or onboard cranes able to unload cargo at underdeveloped or damaged ports. Of the vessels financed in the past decade, eight have been barges or combination tug-barges and five have been supply ships for offshore oil drilling platforms. In the past, several large loans have gone to building such platforms themselves.

As of June 2020, MARAD had \$35.4 million available for subsidy costs associated with Title XI, enough to guarantee approximately \$432 million in loans.⁸ Congress does not appropriate new funding for subsidies every year, though these funds do remain available for multiple years if unused. Its most recent appropriation was \$27 million for FY2018. Absent congressional appropriations, the fees collected by MARAD from borrowers can be enough to allow the agency to guarantee additional loans.

As of December 2020, MARAD's portfolio contained 18 guaranteed loans worth a total of \$2.5 billion, the newest approved in FY2020 and the oldest approved in FY2000. Six more applications for a total of \$487 million in loan guarantees remained pending (see **Table A-1**). A \$331 million loan guarantee that was approved in March 2020 was the first to be issued since FY2016, and was the first to be issued under new rules that specify that the Federal Financing Bank replace commercial banks as the sole buyer of debt guaranteed under Title XI.⁹

Reform Proposals

Congress commissioned an audit of the program in 2003 after a series of defaults. MARAD is not a private-sector lender and is therefore not expected to turn a profit in pursuing its policy goal of strengthening the U.S. shipbuilding and merchant shipping industries, but it does have a secondary policy goal of responsible stewardship of taxpayer dollars. Auditors found that between 1993 and 2002, MARAD had underestimated the number of defaults and overestimated its ability to recover value from loans in default, and that it had not fully complied with regulations governing the program.¹⁰ A follow-up audit conducted in 2009-2010 by the DOT Office of the Inspector General (OIG) found that MARAD had not yet fully implemented procedures for improving oversight of borrowers pursuant to recommendations of previous audits.¹¹ OIG initiated a new audit of the Title XI program in December 2018, as required by the John S. McCain National Defense Authorization Act (NDAA) for FY2019 (P.L. 115-232).¹² The results of the 2018 audit have not yet been published.

⁸ MARAD bases its guarantee capacity estimate on assumptions about the duration of its loans, likelihood of loan losses, interest rates, upfront fees charged to borrowers, and the availability of financing from the Federal Financing Bank. See MARAD, "Subsidy Availability & History," at <https://www.maritime.dot.gov/grants-finances/title-xi/subsidy-availability-history>.

⁹ Jorge Romero and Darrell L. Conner, *Major Changes in Title XI, the Federal Ship Financing Program*, K&L Gates, May 15, 2020, at <https://www.klgates.com/major-changes-in-title-xi-the-federal-ship-financing-program-5-15-2020>.

¹⁰ Government Accountability Office, GAO-03-657, *Maritime Administration: Weaknesses Identified in Management of the Title XI Loan Guarantee Program*, June 2003, at <https://www.gao.gov/products/GAO-03-657>.

¹¹ Department of Transportation Office of the Inspector General, "Title XI Loan Guarantee Program: Actions Are Needed to Fully Address OIG's Recommendations," December 7, 2010, at <https://www.oig.dot.gov/library-item/29793>.

¹² Letter from Barry J. DeWeese, Assistant Inspector General for Transportation Audits, to Mark H. Buzby, Maritime Administrator, December 13, 2018, available at <https://www.oig.dot.gov/library-item/36951>.

In its FY2021 budget request, the Trump Administration proposed the elimination of the Title XI program, and the transfer of the existing loan portfolio to the National Surface Transportation and Innovative Finance Bureau (also called the Build America Bureau) in DOT.¹³ Congress did not take these actions in the Consolidated Appropriations Act, 2021 (P.L. 116-260).

Assistance to Small Shipyards

The FY2006 NDAA¹⁴ authorized MARAD to make matching grants to eligible shipyard facilities with fewer than 1,200 production employees for capital and related improvements. Grant funds may also be used for maritime training programs in communities whose economies are related to or dependent upon the maritime industry.¹⁵ The FY2006 NDAA originally authorized MARAD to make such grants during FY2006-2010, but the FY2009 NDAA¹⁶ codified the program permanently within Title 46 of the *U.S. Code* and extended authority through FY2013. Authority to make grants lapsed for a year before being reauthorized in the Coble Act of 2015¹⁷ for FY2015-FY2017. Grants were authorized again in the FY2018 NDAA¹⁸ for FY2018-FY2020, and for an additional year by the FY2021 NDAA.¹⁹

From the program's first year of authorization in 2006 until 2017 (with the exception of 2014, when funding for the program was not authorized by statute), Congress authorized \$30 million per year, of which \$5 million would be set aside for training programs and the remaining \$25 million would be for capital improvements and related expenses. The FY2018 NDAA increased the total authorized level to \$35 million and removed the set-aside requirement. However, the program has no dedicated funding source and is therefore contingent upon the annual appropriations process. When the program has received an appropriation, it has usually been at a level below what Congress authorized, around \$10 million-\$20 million per year (see **Table A-2**). A notable exception occurred in 2009, when the American Recovery and Reinvestment Act (P.L. 111-5), passed in response to the 2008 financial crisis, appropriated \$100 million for small shipyard grants. This infusion effectively back-funded the program at close to its authorized levels, but no funding was appropriated between FY2012 and FY2015. As a result, while Congress has authorized a cumulative total of \$435 million over the life of the program, only \$228 million has been appropriated for it (not adjusting for inflation).

Capital Construction Funds

The Merchant Marine Act of 1936 (P.L. 74-835) created the Capital Construction Fund (CCF) program, which allows vessel owners to deposit a portion of their shipping profits, taxed at 0%, into CCF accounts and withdraw them later to finance the construction, reconstruction, or acquisition of vessels built or rebuilt in a U.S. shipyard. About 180 companies have established CCFs. MARAD promulgates the rules and regulations related to the CCF program and verifies eligibility and compliance among fund holders. MARAD shares responsibility for the program

¹³ MARAD Budget Estimates for Fiscal Year 2021, p. 79, at <https://www.transportation.gov/sites/dot.gov/files/2020-03/MARAD%20FY%202021%20Budget%20Estimate.pdf>.

¹⁴ P.L. 109-163, §3506.

¹⁵ 46 U.S.C. §54101.

¹⁶ P.L. 110-417.

¹⁷ P.L. 113-281.

¹⁸ P.L. 115-91.

¹⁹ P.L. 116-283.

with the National Oceanographic and Atmospheric Administration, which has jurisdiction over commercial fishing vessels.

Operating Assistance

Maritime Security Fleet

The Maritime Security Act of 1996 (P.L. 104-239) established the Maritime Security Program (MSP) to subsidize operations of the privately owned, U.S.-flagged fleet engaged in international “liner” transport.²⁰ MSP replaced the Operating Differential Subsidy (ODS) program, which was created in the Merchant Marine Act of 1936 and was one of the functions MARAD inherited from an earlier agency.

The purpose of the MSP is to establish and sustain a fleet of active ships that are privately owned, commercially viable, and militarily useful to meet national defense and other emergency sealift requirements. The ships must be crewed by U.S. citizens, but there is no requirement that they be built in the United States. In return for agreeing to register ships under the U.S. flag and to make them available upon request by the Secretary of Defense during times of war or national emergency, carriers receive fixed annual retainer payments. As of February 2020, 60 ships from 16 operators were enrolled in the MSP. Danish shipping giant Maersk owns several of the operators. The MARAD FY2021 budget request estimates that the MSP fleet employs approximately 2,400 merchant mariners.

The MSP was initially enacted as a \$1 billion, 10-year program for a fleet not to exceed 47 ships. The NDAA for FY2004 (P.L. 108-136) codified the program, increased the size of the fleet to 60 ships beginning in FY2006, and reauthorized it for an additional 10 years. Halfway through the life of that authorization, the NDAA for FY2011 (P.L. 111-383) authorized \$1.9 billion for the program for a further 10 years, extending authority to FY2025. Subsequent NDAs altered annual funding levels but not the size of the fleet.

Bills introduced in the House and Senate in 2019 each proposed extending authority for the program through 2035, with new funding levels taking effect beginning in FY2022.²¹ The Senate bill²² would have frozen funding at \$5.2 million per vessel, slightly above FY2021 levels. The House bill²³ proposed increasing the per-vessel subsidy from \$5.3 million in FY2022-FY2025 to \$5.8 million through FY2028, then to \$6.3 million through FY2031 and \$6.8 million through FY2035. Either bill would have avoided a decrease in authorized funding contained in earlier legislation. Eventually, the issue was addressed in the FY2020 NDAA (P.L. 116-92), which retained the stepped-up funding levels from the House proposal (see **Figure 2** below). Subsequently, the FY2021 NDAA authorized a one-year increase to \$8.2 million per vessel for FY2021, but Congress had already appropriated the previously authorized sum of \$314 million before the NDAA was enacted.

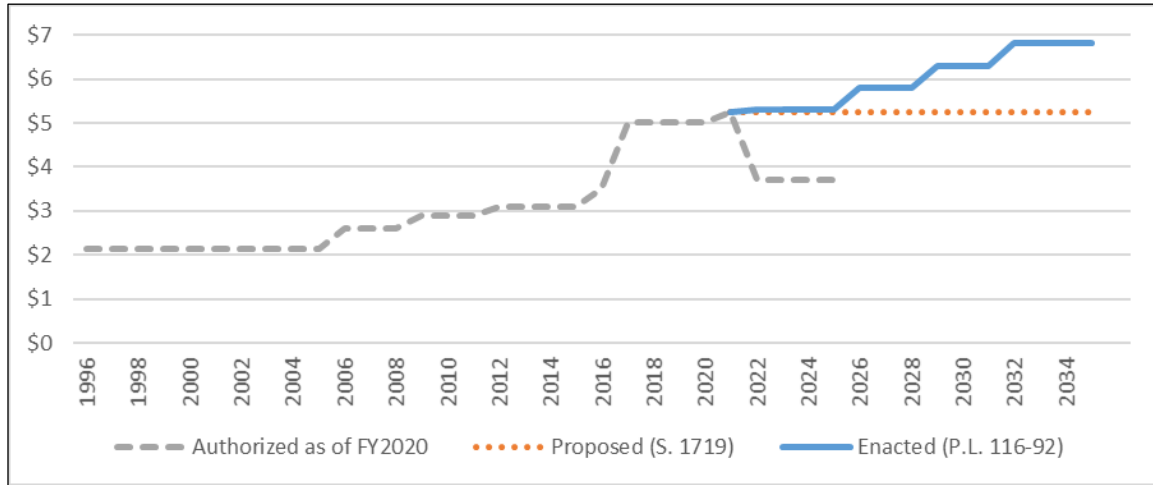
²⁰ “Liner” service generally refers to regularly scheduled shipping performed by container ships and roll-on/roll-off ships with ramps for transporting vehicles.

²¹ Prior to the FY2020 NDAA, MSP funding had been set at \$5.2 million per vessel for FY2021 before decreasing to \$3.7 million per vessel for FY2022-FY2025.

²² S. 1790 (116th Congress).

²³ H.R. 2500 (116th Congress).

Figure 2. Authorized Maritime Security Program Stipend per Vessel, FY1996-FY2035
in millions of nominal dollars



Source: P.L. 104-239, P.L. 108-136, P.L. 111-383, P.L. 112-239, P.L. 114-92, P.L. 114-113, P.L. 115-232, S. 1719, P.L. 116-92.

Notes: From FY1996 to FY2005, stipends were capped at 47 vessels. The cap was increased to 60 vessels beginning in FY2006. Bill numbers refer to 116th Congress.

The House bill would also have created two new programs similar to MSP—one for tankers and one for ships capable of laying and repairing submerged cables—on the grounds that a lack of U.S.-flagged vessels of these types represented a threat to national security not currently addressed by MSP. Each fleet was to consist of at most 10 ships, each subsidized at \$6 million per year. These provisions were not incorporated into the FY2020 NDAA in their entirety, but Congress did authorize a pared-down Cable Security Program (two ships, each subsidized at \$5 million per year) through FY2035.²⁴ Congress then created a similar ten-vessel Tanker Security Program subsidized at \$6 million per vessel per year in the FY2021 NDAA.

One of the main differences between MSP and its predecessor ODS is that MARAD previously committed to 20-year contracts with vessel operators. These contracts were not subject to the annual appropriations process. The promise of 20 years of profitable service for a given vessel was intended to enable the operator to obtain more favorable terms when financing construction in a U.S. shipyard, a requirement of the program. MSP subsidies, though they are paid out over 10-year agreements, *are* subject to the annual appropriations process, and at the time of its introduction this prompted some observers to worry that a less “bankable” program would result in increased cost or reduced availability of financing (the shift from ODS to MSP followed a period in which the Title XI loan program was suspended). MARAD has been able to fill all available slots with qualified ships, though this may be due to the cumulative effects of multiple MARAD programs, not necessarily MSP alone.

One issue facing the MSP (and one that faced the ODS before it) is that the types and sizes of vessels for which there is greatest commercial demand are not always the types and sizes that the military requires. In the earlier days of the ODS program, this was not a significant problem, because many cargo ships could use onboard cranes to self-load and -unload. Changes in the industry, as a result of containerization and other factors, have meant that most general cargo ships move freight in containers between ports with considerable dockside infrastructure such as cranes and rail yards, whereas the military may place strategic value on being able to load and

²⁴ P.L. 116-92, §3521(a).

unload cargo at places other than large container ports. For example, in countries with poor land infrastructure, the most efficient way to deliver military cargo may be to drive fully loaded trucks off the vessel, but commercial demand for the types of roll-on/roll-off vessels the military desires is limited. It may be difficult to justify operating subsidies to container vessels as militarily necessary when most commercial vessels are of limited military utility.

A related program, the Voluntary Intermodal Sealift Agreement (VISA), allows U.S.-flagged commercial ships to devote a portion of their capacity to military cargo. MARAD created VISA in 1995 in partnership with the U.S. Transportation Command, the military command tasked with transporting personnel and cargo for DOD. Specifically, VISA is designed for the movement of ammunition and sustainment cargo. In peacetime, DOD will give priority consideration to VISA participants when booking military cargo on ships. As of February 2020, there were 101 ships enrolled in the VISA program. There is no stipend provided by MARAD for these ships, but they do receive cargo preference (discussed later in this report).

GAO Audit

A 2018 Government Accountability Office (GAO) audit identified a widening differential in operating costs between U.S.-flagged ships in international trade and foreign-flagged vessels and decreasing volume of government cargo, which is reserved for U.S.-flagged ships.²⁵ GAO suggested three potential modifications to the MSP:

1. **Competitive bidding.** Rather than each vessel receiving the same stipend, vessel operators could bid for slots in the program, possibly reducing stipends below current levels for some vessels.
2. **Competition for replacement slots.** Rather than opening all slots to competition, MARAD could open a slot to competition only when an operator wishes to replace one existing MSP vessel with another.
3. **Variable stipend.** Rather than granting each vessel the same stipend, MARAD could adjust the per-vessel stipend by vessel type to more closely reflect the costs and utility of operating a given vessel.

A GAO survey of vessel operators indicated that any changes to the MSP could undermine operators' confidence in predictable revenues.

GAO also considered two alternatives to replacing the MSP as currently configured: replacing MSP vessels with a fully government-owned fleet of ships, or simply expanding the VISA program and contracting for or chartering additional capacity if needed. Each alternative could in theory preserve U.S.-registered sealift capacity, but may not serve MARAD's goals of promoting the domestic merchant marine industry. Under government ownership, the vessels may be underused for prolonged periods, making it difficult to maintain mariners' skills and increase their experience. If MARAD were to contract for ships only when needed, it is possible that ship owners would choose to register their vessels under foreign flags for economic reasons, leaving insufficient U.S.-flagged vessel capacity when required in an emergency.

²⁵ GAO-18-478, "Maritime Security: DOT Needs to Expediently Finalize the Required National Maritime Strategy for Sustaining U.S.-Flag Fleet," August 2018. GAO also noted that Congress directed MARAD to produce a national maritime strategy by February 2015; this strategy was three years past due at the time of the audit, and was not published until July 2020.

National Defense Reserve Fleet

MARAD manages and maintains a fleet of approximately 100 inactive, government-owned vessels in the National Defense Reserve Fleet (NDRF), including 46 ships in the Ready Reserve Force (RRF). Unlike the MSP, these ships do not engage in any peacetime commercial activity. While the NDRF traces its origins to the Merchant Ship Sales Act of 1946, passed in the aftermath of World War II, the RRF originated from a Memorandum of Agreement signed in 1976 in the aftermath of the Vietnam War.

The RRF provides a ready source of “surge” shipping to support rapid deployment of U.S. military forces. RRF ships are kept in a state of readiness to sail on five (in select cases, ten) days’ notice. All NDRF activities, including the RRF, are funded from appropriations transferred to MARAD from the Navy’s National Defense Sealift Fund in accordance with a 1997 Memorandum of Agreement between MARAD and DOD. In FY2020, \$352 million was transferred for RRF activities.²⁶

Vessel age and the availability of mariners could hamper the ability of MARAD to reach its sealift goals. During a no-notice drill conducted in 2019, 60% of RRF vessels were deemed ready, and not all of those were able to leave port.²⁷ In a 2019 hearing before two House subcommittees, former MARAD Administrator Mark Buzby testified that the average age of an RRF vessel was 44 years, and that the correspondingly high cost of maintaining and repairing such old vessels was a challenge to the effectiveness of the program.²⁸

Cargo Preference

Another way federal policy supports the domestic merchant marine industry is by requiring certain percentages of “government impelled” cargo to be carried on U.S.-owned, -flagged, and -crewed vessels. This includes all military cargo, at least half of all export cargo financed through the Export-Import Bank, and half of food aid and other civilian agency aid cargo.²⁹ Private carriers bid to carry this “preference cargo.”³⁰ Carriers that can provide U.S.-flagged service to the final port of discharge are given priority over U.S.-flagged carriers that would transfer cargo to a foreign-flagged feeder vessel to reach the final port. MARAD is responsible for ensuring that federal agencies comply with these shipping requirements. About 85 U.S.-flagged ships carry preference cargoes, including the 60 ships enrolled in the MSP. Commercial cargoes alone are not sufficient to sustain any of the U.S.-flagged ships engaged in international transport; all rely on some combination of preference cargoes and MSP operating subsidies.

The FY2009 Duncan Hunter NDAA specified that preference requirements also apply to cargo that is imported into the United States if the federal government “provides financing in any way with federal funds for the account of any persons unless otherwise exempted.”³¹ At least 50% of such cargo must be shipped in U.S.-flagged vessels.

²⁶ P.L. 116-93, §8109.

²⁷ Ben Werner, “Test of Ready Reserve Force Exposes Need for Newer Ships, More People,” *USNI News*, January 16, 2020, at <https://news.usni.org/2020/01/16/test-of-ready-reserve-force-exposes-need-for-newer-ships-more-people>.

²⁸ House hearing 36-297; see also CRS Insight IN11416, *Maritime Administration’s Ready Reserve Sealift Fleet*, by John Frittelli.

²⁹ P.L. 83-664.

³⁰ See CRS Report R44254, *Cargo Preferences for U.S.-Flag Shipping*, by John Frittelli.

³¹ P.L. 110-417, §3511; 46 U.S.C. §55305(b).

The FY2009 NDAA directed MARAD to issue new regulations and guidance to govern the administration of cargo preference by other federal agencies, but it has not yet done so. The agency submitted a draft notice of proposed rulemaking for Office of Management and Budget approval in December 2011, but the process has not moved forward. MARAD has not indicated when it might restart the regulatory development process.³² Absent this guidance, different agencies within DOT have sometimes made their own determinations as to when and how to apply cargo preference requirements. The Federal Highway Administration has interpreted the law to apply cargo preference requirements to federally supported highway projects carried out by state departments of transportation and other agencies.³³ MARAD has applied cargo preference requirements to imported components for ships constructed with federal loan guarantees.³⁴

Recent legislation has sought to extend cargo preference requirements to commercial cargoes not paid for by the federal government. A bill introduced in 2017 would have required that a certain percentage of crude oil or natural gas exports be moved on U.S.-flagged vessels, but it was not enacted.³⁵ House and Senate companion bills introduced in 2018 and in 2019 would require all exports of liquefied natural gas to be transported by vessels built (or refurbished) and registered in the United States, but these have not been enacted either, despite bipartisan sponsorship.³⁶

Attempts to require commercial cargo to be moved on U.S.-flagged ships have faced strong pushback from importers and exporters seeking to maximize flexibility and minimize costs in their shipping options.³⁷ A 2015 GAO audit validated some of these concerns when it found that cargo preference requirements can increase the cost of delivering exported food aid by an estimated 23%.³⁸

Other Support Programs

Merchant Marine Training

Consistent with the policy goal of having a U.S.-flagged merchant fleet crewed by “trained and efficient citizen personnel,”³⁹ Congress supports the U.S. Merchant Marine Academy and six state maritime academies. Funds for academy activities—as well as the procurement, upkeep, and replacement of classroom ships—are provided in MARAD’s budget.

³² U.S. Congress, House Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation, *The State of the U.S.-Flag Maritime Industry*, 115th Cong., 2nd sess., January 17, 2018, p. 10.

³³ FHWA, “Cargo Preference Act and Federal-aid Projects,” Letter from Chief Counsel, December 8, 2015, at <https://www.fhwa.dot.gov/construction/cqit/cargo/151208.cfm>.

³⁴ 80 *Federal Register* 22611, April 22, 2015. Comments filed by U.S. shipbuilders and domestic ocean carriers in response to the proposed policy clarification asserted that the requirement would severely disrupt shipbuilding supply chains. For additional background, see CRS Report R44831, *Revitalizing Coastal Shipping for Domestic Commerce*, by John Frittelli.

³⁵ H.R. 1240 (115th Congress).

³⁶ H.R. 5893 and S. 2916 (115th Congress), H.R. 3829 and S. 2167 (116th Congress).

³⁷ J. Michael Cavanaugh, *History Doesn’t Bode Well for New Commercial Cargo Preference Bill*, Holland & Knight, March 21, 2017, at <https://www.hklaw.com/en/insights/publications/2017/03/history-doesnt-bode-well-for-new-commercial-cargo>.

³⁸ Government Accountability Office, “International Food Assistance: Cargo Preference Increased Food Aid Shipping Costs; Benefits Remain Unclear,” October 19, 2017, p. 3, at <https://www.gao.gov/assets/690/687836.pdf>; see also CRS Report R45422, *U.S. International Food Assistance: An Overview*, by Alyssa R. Casey.

³⁹ 46 U.S.C. §50101.

United States Merchant Marine Academy

The U.S. Merchant Marine Academy (USMMA), located at Kings Point, NY, is an accredited institution of higher education and one of the nation's Federal Service Academies, a group that also includes the Army, Navy, Air Force, and Coast Guard academies. Besides distributing funds, MARAD has authority to direct the academy superintendent appointed by the Secretary of Transportation, as well as other oversight duties.

In exchange for education provided free of charge for tuition, room, and board, graduates can choose either to work five years on U.S. merchant ships along with serving for eight years as an officer in any military reserve unit, or to serve five years on active duty in the armed forces. About one-fourth of graduates choose the latter option. In FY2021, Congress appropriated \$86 million for the USMMA, which graduates approximately 230 Coast Guard-credentialed merchant mariners each year.

The USMMA was the first federal service academy to admit women, but today it graduates the fewest. Despite a provision in the 2009 NDAA requiring USMMA to be a sexual assault-free environment, in 2014-2015 it reported the highest rate of sexual assault and harassment of any of the federal service academies.⁴⁰ A 2018 OIG audit mandated by the 2017 NDAA found that the USMMA Sexual Assault Prevention and Response program did not align with guidelines issued by the Centers for Disease Control and Prevention and issued 10 recommendations for further action, all of which MARAD concurred with. By law, the MARAD Office of Civil Rights must maintain an open line of communication with USMMA cadets, outside the usual chain of command, for sexual harassment and assault claims.

State Merchant Marine Academies

Six state maritime academies also receive federal assistance from MARAD:

1. California Maritime Academy in Vallejo, CA;
2. Great Lakes Maritime Academy in Traverse City, MI;
3. Maine Maritime Academy in Castine, ME;
4. Massachusetts Maritime Academy in Buzzards Bay, MA;
5. State University of New York (SUNY) Maritime College in The Bronx, NY; and
6. Texas A&M Maritime Academy in Galveston, TX.

The six academies collectively graduated 922 merchant mariners in FY2019. Unlike graduates of USMMA, graduates of state maritime academies are not automatically commissioned as officers in the armed forces or reserves, but they do receive the necessary training to obtain a Coast Guard credential for crewing merchant vessels.

State maritime academy funding was previously distributed from MARAD's general Operations and Training account. The Consolidated Appropriations Act for Fiscal Year 2019 (P.L. 116-6) created a new Treasury account for state maritime academy funding. MARAD received \$345 million in FY2019, \$342 million in FY2020, and \$433 million in FY2021 to fund state maritime academy program activities, including at least \$300 million each year for the procurement of new training ships as described below.

⁴⁰ Lisa Rein, "Merchant Marine midshipmen endure rough waters as sexual misconduct roils their ranks," *Washington Post*, July 18, 2016, at <https://www.washingtonpost.com/news/powerpost/wp/2016/08/11/merchant-marine-academy-under-fire-for-sexual-assault-allegations/>.

Training Ships

MARAD's support for state maritime academies includes the use of six ships from the NDRF used for training purposes. The oldest ship still in use, the *TS Empire State VI*, was built in 1962, and the youngest, the *TS State of Maine*, was built in 1990. All six were originally cargo or research vessels and were converted to training ships between 1989 and 2003. One training ship, the *TS General Rudder*, has capacity for only 50 cadets, which meets approximately 20% of the training capacity requirement of the academy that uses it. MARAD maintains a seventh training ship, transferred from NASA in 2012, as a backup.

Congress appropriated a total of \$11 million in FY2016-FY2017 to design a new National Security Multi-Mission Vessel (NSMV) to replace the oldest of these ships. The NSMV design, which incorporates the capacity needs of each state maritime academy, would accommodate 600 cadets and would be equipped with on-board educational facilities. It would also include a helicopter landing pad and the capacity to berth 1,000 people as part of humanitarian or emergency relief missions.

Congress has subsequently appropriated \$300 million annually in FY2018-FY2020 to construct new NSMVs. In May 2019, MARAD contracted with TOTE Services to serve as the vessel construction manager on the project,⁴¹ and in April 2020 Philly Shipyard Inc. was selected to construct the vessels.⁴² According to MARAD's acquisition strategy, the first ship would be delivered in 2023, with additional ships delivered at 12-month intervals. The initial order was for two vessels using funds appropriated through FY2019, with an option to construct up to three more pending the availability of funds for a total possible contract value of approximately \$1.5 billion. The Administration requested a \$95 million decrease in appropriations for the NSMV program for FY2020, which would have necessitated a new design for future vessels. Congress did not adopt these cuts and fully funded a third NSMV, followed by a fourth in FY2021.

Mariner Shortage

In an audit conducted in 2018 and updated in 2020, GAO found that maritime industry stakeholders and government officials shared concerns about a lack of qualified U.S.-citizen mariners.⁴³ The audit cited a 2017 report from the MARAD Maritime Workforce Working Group that estimated a shortage of over 1,800 mariners in the event of a drawn-out military effort, though it also admitted uncertainty in the count of available mariners. Some older NDRF ships are steam powered, unlike much of the commercial fleet. This could mean that even if a full complement of mariners were available in time of war, the mariners may not be capable of mobilizing MARAD's entire reserve fleet. However, the number of available shipboard positions during peacetime may be insufficient to provide employment for all graduates if class sizes at maritime academies were to be enlarged as a result of increased funding.

⁴¹ TOTE Services, "Tote Services Awarded MARAD Contract to Develop National Security Multi-Mission Vessel," press release, May 21, 2019, at <http://www.toteservices.com/blog/2019/05/21/tote-services-awarded-marad-contract-to-develop-national-security-multi-mission-vessel/>.

⁴² Philly Shipyard, "Philly Shipyard Wins Major Training Ships Contract," press release, April 8, 2020, at http://www.phillyshipyard.com/s.cfm/2-38_94/Philly-Shipyard-Wins-Major-Training-Ships-Contract.

⁴³ Government Accountability Office, "National Maritime Strategy: DOT Is Taking Steps to Obtain Interagency Input and Finalize Strategy," January 15, 2020, at <https://www.gao.gov/assets/710/703892.pdf>.

Port Infrastructure Development Grants

Section 3512 of the NDAA for FY2010⁴⁴ created a new program for Port Infrastructure Development (PID) Grants overseen by MARAD. Port infrastructure projects are traditionally funded by private industry and local port authorities, not by the federal government, but supporters argued that additional federal support was justified given the importance of maritime freight.⁴⁵ Congress did not specify a funding level for this program, instead authorizing “such sums as may be necessary” to carry out the goals of the program. After several years without any funding, the program has received a total of \$748 million across three separate annual appropriations beginning in FY2019. The first project selections, totaling over \$280 million in awarded funds, were announced in February 2020.⁴⁶

The PID Grant program allows ports to compete for funds that would be otherwise unavailable or more difficult to obtain under other discretionary grant programs such as the Infrastructure for Rebuilding America (INFRA) program. INFRA, created by the Fixing America’s Surface Transportation Act of 2015 (FAST Act; P.L. 114-94), is primarily focused on highway freight movement, with a limited amount of funds available for rail or landside port projects, capped in the aggregate by statute. The program receives funding from the Highway Trust Fund and is not subject to annual appropriations, but it (along with the rest of the FAST Act) is slated to expire at the end of FY2020. Some Members have proposed raising the cap on non-highway funding from INFRA, if not removing the cap altogether, if the program is reauthorized.

Port projects are also eligible for the Better Utilizing Investments to Leverage Development (BUILD) grant program, managed by the Office of the Secretary of Transportation, but must compete with highway, rail, and transit projects for grant funds. Citing eligibility under INFRA and BUILD, the Administration requested no additional funding for PID grants in its FY2021 budget request, but Congress has continued to appropriate new funding.

Marine Highways

The Energy Independence and Security Act of 2007 (P.L. 110-140) directed MARAD to create a program that would encourage “short sea transportation.” Short sea transportation involves loading freight—usually in intermodal containers or truck trailers—onto vessels for part of their journeys, taking advantage of increased fuel economy and potentially bypassing congested roadways. A primary goal of the new program was to reduce landside congestion at ports by designating a network of “marine highways.” The Marine Highway system currently includes 25 routes that offer relief to landside corridors suffering from traffic congestion, excessive air emissions, or other environmental challenges (**Figure 3**). Each route is designated by the Secretary of Transportation.

Congress appropriated \$10.8 million for the America’s Marine Highway program for FY2021. A total of \$31 million in federal funds has been awarded to 30 projects since 2007, but the program has not always received an annual appropriation.⁴⁷

⁴⁴ P.L. 111-84.

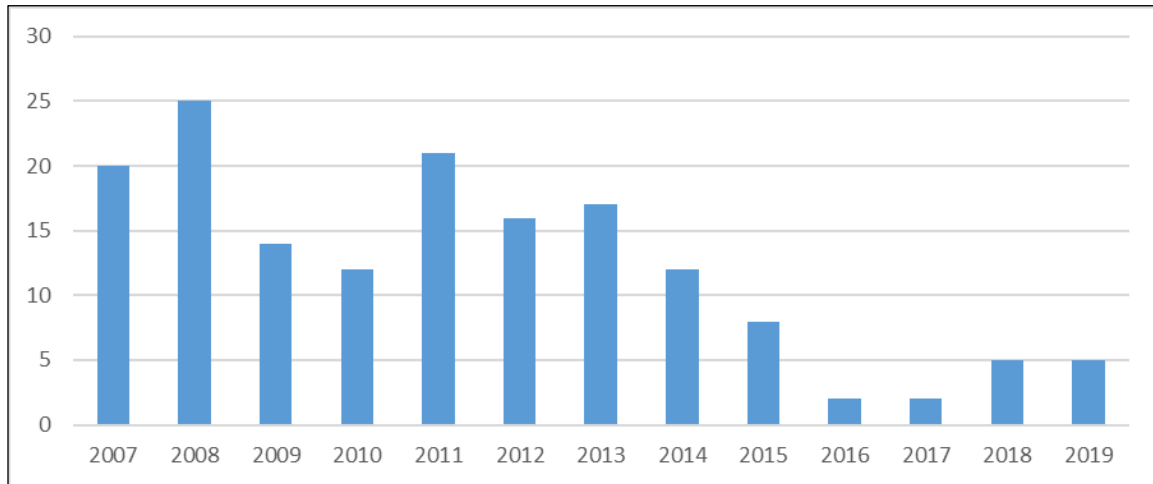
⁴⁵ “America’s Marine Highways Grants Proposed,” Marine Link, July 14, 2009, at <https://www.marinelink.com/news/americas-highways331213>.

⁴⁶ MARAD, “Maritime Administration Announces More than \$280 Million in Grants for Nation’s Ports,” press release, February 14, 2020, at <https://www.maritime.dot.gov/newsroom/press-releases/maritime-administration-announces-more-280-million-grants-nations-ports>.

⁴⁷ The volume of domestic waterborne freight has held steady at around 500 billion ton-miles per year since 2008 (the

NDRF and other federal fleets. MARAD has disposed of 159 such vessels since FY2007 (Figure 4).

Figure 4. Obsolete NDRF Vessels Removed for Disposal, FY2007-FY2019



Source: MARAD FY2021 Budget Estimates.

Commercial shipbreaking is similar to shipbuilding in that a small number of foreign countries—in this case, Bangladesh, Pakistan, and India—tend to dominate the market. MARAD is limited to the use of domestic recyclers by a provision of the NDAA for FY2009.⁵⁰ The few MARAD-qualified shipbreakers are concentrated along the Gulf Coast in Texas and Louisiana.⁵¹

The Nuclear Ship *Savannah*

MARAD also uses funds from the Ship Disposal Program to decommission the nuclear ship *Savannah*, which it owns. *Savannah* was the world's first nuclear-powered merchant ship, launched in 1959 as a joint project between MARAD, then-parent agency the Department of Commerce, and the Atomic Energy Commission, to demonstrate the feasibility of nuclear propulsion for peacetime purposes. *Savannah* served as a passenger-cargo liner from its maiden voyage in 1962 through 1965, then transported cargo exclusively until 1971. No further nuclear cargo ships were ever built in the United States; the cost of maintaining a nuclear reactor and the ship's comparatively small cargo capacity prevented it from being economically viable. Worldwide, only three other nuclear cargo ships have ever been built.

Since leaving active service, *Savannah* spent time as a museum ship in South Carolina from 1981 to 1994, during which time it was added to the National Register of Historic Places (in 1982) and designated a National Historic Landmark (in 1991). Since 2008, *Savannah* has been docked at the Canton Marine Terminal in Baltimore harbor, except for a brief period spent in dry dock in Philadelphia in late 2019 and early 2020. Decommissioning must be completed by December 2031, at which point MARAD may explore options to preserve or dispose of it. Of the \$4.2 million appropriated for the Ship Disposal Program in FY2021, some portion is likely to be set aside for upkeep of *Savannah*.

⁵⁰ P.L. 110-47, §3502.

⁵¹ MARAD, *Report to Congress: Maritime Administration Vessel Disposal Program*, March 2016, pp. 6-8, at <https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/about-us/foia/4186/march-2016-report-2.pdf>.

Appendix. Additional Data

Table A-1. Title XI Funding, Applications Approved, Loan Guarantee Amounts Approved, and Guaranteed Loan Amounts Outstanding, FY2000-FY2020

all figures are in millions of dollars except Applications Approved

| Year | Appropriated Funding | Applications Approved | Loan Amounts Approved | Loan Amounts Outstanding |
|--------------|----------------------|-----------------------|-----------------------|--------------------------|
| FY2000 | 6 | 13 | 892 | 209 |
| FY2001 | 30 | 12 | 730 | 185 |
| FY2002 | 33 | 8 | 225 | 0 |
| FY2003 | 25 | 4 | 519 | 338 |
| FY2004 | 0 | 1 | 12 | 0 |
| FY2005 | 0 | 1 | 140 | 0 |
| FY2006 | 5 | 0 | 0 | 0 |
| FY2007 | 0 | 0 | 0 | 0 |
| FY2008 | 5 | 0 | 0 | 0 |
| FY2009 | 0 | 2 | 307 | 307 |
| FY2010 | 5 | 1 | 23 | 0 |
| FY2011 | 5 | 3 | 798 | 346 |
| FY2012 | (35) | 0 | 0 | 0 |
| FY2013 | 0 | 0 | 0 | 0 |
| FY2014 | 35 | 1 | 325 | 325 |
| FY2015 | 0 | 1 | 12 | 12 |
| FY2016 | 5 | 1 | 397 | 397 |
| FY2017 | 0 | 0 | 0 | 0 |
| FY2018 | 27 | 0 | 0 | 0 |
| FY2019 | 0 | 0 | 0 | 0 |
| FY2020 | 0 | 1 | 331 | 331 |
| Total | 146 | 49 | 4,710 | 2,451 |

Source: MARAD; compiled by CRS.

Notes: Includes appropriations to the financing (subsidy costs) account only, not the program (administrative costs), account. Loan Amounts Approved includes all guaranteed loans outstanding and retired due to repayment or default. Loan Amounts Outstanding refers to original commitment and does not reflect any partial repayment. Dollar amounts are not adjusted for inflation. Numbers may not add exactly due to rounding.

**Table A-2. Assistance to Small Shipyards
Authorizations and Appropriations, FY2006-FY2020**

in millions of nominal dollars

| Year | Authorized Funding | Appropriated Funding |
|--------------|---------------------------|-----------------------------|
| 2006 | 30 | — |
| 2007 | 30 | — |
| 2008 | 30 | 10 |
| 2009 | 30 | 118 |
| 2010 | 30 | 15 |
| 2011 | 30 | 10 |
| 2012 | 30 | — |
| 2013 | 30 | — |
| 2014 | n/a | — |
| 2015 | 30 | — |
| 2016 | 30 | 5 |
| 2017 | 30 | 10 |
| 2018 | 35 | 20 |
| 2019 | 35 | 20 |
| 2020 | 35 | 20 |
| 2021 | 20 | 20 |
| Total | 455 | 248 |

Source: Compiled by CRS using information from congress.gov.

Notes: The Small Shipyards program received \$100 million from the American Recovery and Reinvestment Act of 2009 (P.L. 111-5) and \$17.5 million from the Omnibus Appropriations Act of 2009 (P.L. 111-8).

Table A-3. MARAD Funding by Program and Full-Time Equivalent Employment, FY2015-FY2020

in millions of nominal dollars and FTEs

| Program | FY2015 | FY2016 | FY2017 | FY2018 | FY2019 | FY2020 | FY2021 |
|--------------------------------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|
| Operations and Training | 148.1 | 171.2 | 175.6 | 513.6 | 149.4 | 152.6 | 155.6 |
| State Maritime Academy Operations | — | — | — | [300.0] | 345.2 | 342.3 | 432.7 |
| Maritime Security Program | 186.0 | 210.0 | 300.0 | 300.0 | 300.0 | 300.0 | 314.0 |
| Cable Security Program | — | — | — | — | — | — | 10.0 |
| Port Infrastructure Development | — | — | — | — | 292.7 | 225.0 | 230.0 |
| Ship Disposal | 4.0 | 5.0 | 34.0 | 116.0 | 5.0 | 5.0 | 4.2 |
| Assistance to Small Shipyards | — | 5.0 | 10.0 | 20.0 | 20.0 | 20.0 | 20.0 |
| Maritime Guaranteed Loans (Title XI) | 3.1 | 8.1 | 3.0 | 30.0 | 3.0 | 3.0 | 3.0 |
| Total Funding | 341.2 | 399.3 | 522.6 | 979.6 | 1,115.3 | 1,047.9 | 1,169.5 |
| Full-time equivalent employment | 770 | 754 | 732 | 724 | 733 | 785 | n/a |

Source: MARAD and congress.gov; compiled by CRS.**Notes:** FY2018 State Maritime Academy Operations were funded out of Operations and Training. Title XI funding includes the program (administrative costs) and financing (subsidy costs) accounts. Figures do not include COVID-19 emergency relief funds from the CARES Act, which provided an additional \$3.1 million for Operations and Training and \$1 million for State Maritime Academy Operations in FY2020.

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