

GAO

Report to the Ranking Minority Member,
Subcommittee on Readiness, Committee
on Armed Services, House of
Representatives

March 2005

MARITIME ADMINISTRATION

Improved Program Management Needed to Address Timely Disposal of Obsolete Ships



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Highlights of [GAO-05-264](#), a report to the Ranking Minority Member, Subcommittee on Readiness, Committee on Armed Services, House of Representatives

Why GAO Did This Study

The Maritime Administration (MARAD) has more than 100 obsolete and deteriorating ships awaiting disposal that pose potentially costly environmental threats to the waterways near where they are stored. Congress, in 2000, mandated that MARAD dispose of them by September 30, 2006. While MARAD has various disposal options available, each option is complicated by legal, financial, and regulatory factors.

In this report, GAO assesses (1) whether MARAD will meet the September 2006 disposal deadline for these ships and, if not, why not; (2) the extent that MARAD has used alternative disposal methods other than scrapping, and barriers to using other methods; (3) the appropriateness of MARAD's methods for procuring ship disposal services; and (4) the impact of foreign competition and other factors on reducing disposal costs.

What GAO Recommends

GAO is making recommendations that would strengthen the management of MARAD's ship disposal program, including developing a comprehensive, integrated approach and changing the contracting method for disposal services.

The Department of Transportation stated that MARAD is taking some actions that may address GAO recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-05-264.

To view the full product, including the scope and methodology, click on the link above. For more information, contact William M. Solis at (202) 512-8365 or solisw@gao.gov.

MARITIME ADMINISTRATION

Improved Program Management Needed to Address Timely Disposal of Obsolete Ships

What GAO Found

MARAD is unlikely to meet its statutory deadline of September 30, 2006. As of September 2004, MARAD had disposed of 18 ships from its inventory, with over 100 ships left to dispose of by the deadline. MARAD's current approach is not sufficient for disposing of these remaining ships within the next 2 years. MARAD's slow progress is due primarily to program leaders not developing a comprehensive management approach that could address the myriad of environmental, legal, and regulatory challenges that the program faces. MARAD's approach lacks an integrated strategy with goals, milestones, performance measures, and a mitigation plan for overcoming anticipated impediments. In the absence of this comprehensive approach, MARAD's ship disposal program lacks the vision needed to sustain a long-term effort. Consequently, MARAD has not been able to assure Congress that it can dispose of these ships in a timely manner to reduce the threat of a costly environmental event, nor has it clearly articulated what additional congressional assistance, such as funding, may be needed.

While MARAD has considered alternative disposal methods to scrapping, it has made limited use of these methods because of a number of environmental, financial, and legislative barriers. Since fiscal year 2001, MARAD has disposed of 17 ships through scrapping, but only 1 through artificial reefing. MARAD has not disposed of ships using deep-water sinking and donations to historic organizations. MARAD has taken positive steps to reduce barriers limiting its use of these methods but still may be years away from increasing the number of disposals using these alternative methods because it has not developed an overall plan for expanding their use. Consequently, MARAD may be losing opportunities that could expedite the disposal of the obsolete ships in its inventory.

Since fiscal year 2002, MARAD has relied almost entirely on an inappropriate procurement method—Program Research and Development Announcements (PRDA)—to acquire ship scrapping services. The Federal Acquisition Regulation and the Competition in Contracting Act of 1984 generally require that MARAD use other methods for acquiring these types of services. PRDAs may only be used to contract for research or development. According to MARAD, PRDAs provide greater flexibility and allow firms to propose innovative solutions to ship disposal. GAO found, however, that MARAD was not contracting for research or development but instead was acquiring ship scrapping services. MARAD's use of PRDAs has also resulted in a lack of transparency in the contract award process and has raised concerns among firms as to the fairness of MARAD's processes.

While GAO was unable to isolate the specific impact of foreign competition and other factors on reducing ship disposal costs, MARAD attributes the decrease in ship disposal prices almost exclusively to foreign competition. However, other factors, such as larger annual program funding and increases in the scrap value of steel, may have also played a role.

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Abbreviations

CICA	Competition in Contracting Act
DOT	Department of Transportation
EPA	Environmental Protection Agency
FAR	Federal Acquisition Regulation
GAO	Government Accountability Office
GPRA	Government Performance and Results Act
IDIQ	indefinite delivery, indefinite quantity
MARAD	Maritime Administration
PCB	polychlorinated biphenyl
PRDA	Program Research and Development Announcement
SINKEX	Sinking Exercise

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United States Government Accountability Office
Washington, D.C. 20548

March 7, 2005

The Honorable Solomon P. Ortiz
Ranking Minority Member
Subcommittee on Readiness
Committee on Armed Services
House of Representatives

Dear Mr. Ortiz:

More than 100 deteriorating and obsolete ships that are part of the National Defense Reserve Fleet¹ are anchored along the East, West, and Gulf coasts, awaiting disposal because they are no longer needed for national defense. Many of them contain hazardous materials such as asbestos, lead, polychlorinated biphenyls (PCB), and residual oils and fuels that are typically found on older ships. Some of these ships have been associated with oil spills, with the largest in 1998 costing about \$1.4 million to clean up. Members of Congress, the states, and environmental groups have expressed concerns about the environmental hazards posed by these ships. The Maritime Administration (MARAD), which is part of the Department of Transportation (DOT), is responsible for the disposal of these obsolete ships.

Ship disposal is complicated by a number of factors. MARAD must comply with numerous federal statutes that affect ship scrapping, including those related to the treatment of hazardous materials.² To dispose of these ships, MARAD must also coordinate its efforts with various federal agencies, individual states, and foreign governments. For example, MARAD has to work with the states and the Environmental Protection Agency (EPA) to ensure that hazardous materials are removed from ships in compliance with federal and state environmental and worker safety laws. MARAD has a number of methods that it can choose from to dispose of these ships, including selling them to, or contracting with, domestic or foreign scrapping companies to dismantle them; sinking them to create artificial

¹ Established in 1946, the National Defense Reserve Fleet serves as a reserve that could be activated to meet shipping requirements during national emergencies. The fleet, which consists of more than 250 merchant vessels, contains some older vessels that have been designated for disposal (referred to as nonretention ships). In this report, we refer to nonretention ships as obsolete ships.

² Scrapping refers to dismantling the ship and recycling its components.

reefs; donating them to private or public entities for various authorized uses; or transferring them to the Navy for use in its deep-sinking training exercises. However, each of these disposal methods has associated challenges. For example, the number of domestic firms that have been interested in scrapping has been limited. In addition, environmental, regulatory, and legal barriers have limited opportunities to export ships for scrapping, and have led to lower demand for donations and reefing.

MARAD's ship disposal program has long been recognized as a concern. In the late 1990s, DOT's Inspector General and GAO both reported that MARAD was making little progress in selling its obsolete ships to be scrapped—at that time its predominate method for disposal. The reports cited several constraints, including a 1994 government limitation on overseas ship sales, a 1998 ban on overseas scrapping for environmental reasons, and a decline in the domestic industry's interest in buying ships. In 2000, DOT's Inspector General added MARAD's ship disposal program to the department's list of high-priority management challenges and made several recommendations to improve the ship disposal program, including the need for MARAD to develop a disposal plan. In response to the difficulties that MARAD was facing in selling its ships, Congress specifically authorized³ MARAD in October 2000 to begin paying for scrapping services but also directed MARAD to consider other disposal methods in developing its disposal program. At that time, Congress extended MARAD's deadline to complete the disposal of its obsolete ship inventory from September 30, 2001, to September 30, 2006.⁴ To accomplish this, Congress has appropriated almost \$80 million to MARAD's ship disposal program from fiscal years 2001 to 2005. In addition, within 6 months after the enactment of the Defense Authorization Act of 2001, Congress directed MARAD to report on its ship disposal program and provide progress reports every 6 months thereafter.⁵ As of December 2004,

³ Pub. L. No. 106-398, § 3502 (2000).

⁴ Congress originally required MARAD to dispose of obsolete ships in the National Defense Reserve Fleet by September 30, 1999, in The National Maritime Heritage Act of 1994, Pub. L. No. 103-451, § 6(c)(1)(A). Congress subsequently amended the deadline to September 30, 2001, in the National Defense Authorization Act for Fiscal Year 1998, Pub. L. No. 105-85, § 1026(c)(3) (1998). Congress set the deadline of September 30, 2006, in the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001, Pub. L. No. 106-398, § 3502(a) (2000).

⁵ Pub. L. No. 106-398, § 3502 (2000).

MARAD had submitted to Congress its initial report and two of the progress reports.

Leading organizations embrace key principles to effectively implement and manage programs. The Government Performance and Results Act of 1993, for example, embodies key principles that provide an effective management framework to improve the likelihood of successfully implementing programs and assessing results. The framework consists of a number of critical elements considered essential in developing an effective strategy, guiding resource allocations, and monitoring results. Combined with effective leadership, these elements provide decision makers with a framework to guide program efforts and the means to determine if these efforts are achieving the desired results.

We were asked to review MARAD's ship disposal program and related contracting and procurement processes. Specifically, our objectives were to (1) determine whether MARAD will meet the statutory deadline of September 2006 to dispose of its obsolete ships and, if not, what factors may prevent it from doing so; and (2) assess the extent to which MARAD has used alternative methods, other than ship scrapping, to dispose of its obsolete ships and the barriers to using such alternatives. In addition, we were asked to examine the appropriateness of MARAD's primary procurement method (Program Research and Development Announcements) for obtaining ship disposal services and the impact of foreign competition and other factors on reducing ship disposal costs.

To determine whether MARAD will meet its September 2006 deadline and identify factors affecting this goal and to assess whether MARAD has considered alternative approaches to scrapping, we reviewed the agency's performance plans and program status reports and applicable laws and regulations. We also interviewed MARAD, Navy, and industry representatives to discuss barriers to program success. To assess the appropriateness of MARAD's acquisition methods for procuring ship disposal services, we interviewed MARAD program, administrative, and legal officials to identify what acquisition methods they used and what their rationale was for their use. We also reviewed contract documents, the Federal Acquisition Regulation, and case law. To assess the impact of foreign competition and other factors on disposal prices, we reviewed industry proposals and contracts to identify price trends and interviewed industry representatives to get their perspectives on factors affecting these trends. We determined that the data used in the report were sufficiently reliable for meeting our purposes. We conducted our review between

December 2003 and November 2004 in accordance with generally accepted government auditing standards. A detailed description of our scope and methodology is provided in appendix I.

Results in Brief

MARAD is unlikely to meet the statutory deadline of September 30, 2006, to complete the disposal of its obsolete ships, thereby increasing the risk of costly environmental contamination. From the time that the deadline was established in October 2000 until September 2004, MARAD had completed the disposal of 18 ships,⁶ or about 12 percent of its total of 157 obsolete ships. It had also awarded contracts for 29 other ships. At this pace, MARAD is unlikely to complete the disposal of the remaining 110 ships and the additional 30 ships it expects to receive within the next 2 years. MARAD's current approach, which has resulted in disposing of an average of about 5 ships per year, is not sufficient for disposing of the remaining ships over the next 2 years. MARAD's slow progress is due primarily to program leaders not developing a comprehensive management approach to better focus the program's efforts on meeting the myriad of challenges that the program faces in eliminating its inventory in a timely and efficient manner. While MARAD has adhered to some management principles that are compatible with the Government Performance and Results Act and those used by leading organizations, such as including the ship disposal program in MARAD's overall strategic and performance planning process, better progress has not been made because several key management elements that leading organizations usually embrace are missing or are inadequate. These include (1) no integrated strategy with goals, approaches, and milestones for meeting the 2006 deadline; (2) no identification of long-term funding resources to achieve program goals; (3) inadequate performance measures to track progress toward achieving the goals; (4) inadequate identification of the external factors, particularly those that are legal, regulatory, and environmental, which could impact the program's progress, and inadequate plans to mitigate these factors; (5) inadequate formal decision-making framework; and (6) no formal program evaluations. In the absence of a comprehensive management approach that includes all of these key elements, MARAD's ship disposal program lacks the vision needed to sustain a long-term effort. Moreover, while MARAD was required to provide Congress with an initial plan and subsequent progress reports thereafter, it has submitted only two out of a

⁶ From October 2004 through January 2005, MARAD stated that 4 additional ships had been completely disposed of, for a total of 22 ships from the 2001 inventory.

possible seven of these required progress reports. As a result of weaknesses in MARAD's management approach, managers are not in a position to make sound decisions concerning the ship disposal program. In addition, MARAD has not been able to provide Congress and other interested parties with a reasonable timetable and the associated annual funding requirements needed to meet the 2006 deadline, nor has it clearly articulated the areas that congressional assistance may be needed to expedite the disposal of these deteriorating ships, which continue to pose potentially costly environmental threats to the waterways near the sites where these ships are stored.

Since Congress directed MARAD in 2000 to consider alternative ship disposal methods to scrapping when developing its program, MARAD has made limited use of these methods—artificial reefing, deep-water sinking, and donation—because of a number of environmental, financial, and legislative barriers. From October 2000 through September 2004, MARAD had disposed of 17 ships through scrapping services or sales contracts and only 1 ship through an alternative method—artificial reefing. It had not disposed of any ships through the Navy's deep-water sinking program⁷ or the ship donation program. With congressional support, MARAD recently took a number of actions to reduce the impediments that have limited its use of alternative methods. For example, MARAD and EPA drafted national guidelines for remediating ships for the artificial reefing program; MARAD and the Navy signed a memorandum of agreement to include MARAD's obsolete ships in the Navy's deep-water sinking program; and MARAD received new authority⁸ to donate ships without special legislation. Despite these positive steps, MARAD may be years away from increasing the number of disposals using these alternative methods. MARAD lacks an overall plan that could expand the use of these alternative disposal methods. For example, MARAD has not developed policies that could help guide its allocation of funds among all of its available ship disposal methods. As a result, MARAD may be losing opportunities to dispose of more of its obsolete ships using these alternative methods in the most cost-efficient and timely manner.

⁷ The Navy's Sinking Exercise program uses obsolete ships for target practice during deep-water training exercises.

⁸ Pub. L. No. 108-136, § 3512 (2003).

Since fiscal year 2002, MARAD has relied primarily on one procurement method—Program Research and Development Announcements (PRDA)—to acquire ship scrapping services, but this method is not appropriate for this purpose. Since October 2002, MARAD has awarded contracts for 34 ships through PRDA solicitations and only 4 through another procurement method.⁹ According to MARAD, PRDAs are a variant of broad agency announcements, an authorized procurement process under the Federal Acquisition Regulation (FAR) and the Competition in Contracting Act of 1984. PRDAs are designed to enable federal agencies to acquire basic and applied research and that part of development not related to the development of a specific system or hardware procurement. MARAD officials told us that the PRDA method provides greater flexibility and allows firms to propose new or innovative solutions to ship disposal. In addition, they said they chose PRDAs to attract a larger number of responses from qualified firms and, thereby, increase competition and reduce costs. However, our analysis of MARAD’s PRDAs and the contracts awarded under PRDAs through February 2004 showed that MARAD was not contracting for research or development but instead was acquiring conventional ship scrapping services. Moreover, we found that while the PRDA method attracted a larger number of firms, other factors, such as MARAD’s access to increased appropriations and higher scrap metal prices, could have accounted for greater competition and reduced costs. MARAD’s use of PRDAs has led to a lack of transparency in the contract award process and has raised concerns of fairness among industry participants.

While we could not isolate the specific impact of foreign competition and other factors on reducing the cost of ship disposal, MARAD attributes the overall decrease in ship disposal costs almost exclusively to overseas competition. However, several other factors are likely to have played a role. Since MARAD received specific authority to procure scrapping services in fiscal year 2001, there has been a steady decline in the price per ton to scrap ships. In 2001, MARAD paid contractors an average of about \$250 per ton to scrap ships; in 2004, this cost fell to about \$109 per ton—a decrease of about 56 percent. While the addition of overseas competition has likely been a factor, other factors, such as larger annual program funding and increases in the scrap value of steel, have probably also played a role.

⁹ MARAD used the sealed bidding contracting method that employs competitive bids, public opening of bids, and awards primarily on the basis of price and other price-related factors. FAR Part 14.

We are making recommendations that would strengthen the management of MARAD's ship disposal program, including developing a comprehensive, integrated approach and changing the method it uses to contract for ship disposal services. In commenting on a draft of this report, DOT did not directly comment on whether it agreed with our recommendations, but it stated that MARAD is taking some actions that may address them. Specifically, DOT stated that MARAD agrees that the time is right to ensure that its planning efforts are up to date and are appropriately comprehensive and MARAD will provide an updated vision of its comprehensive integrated approach to program management in subsequent reports to Congress. DOT also commented that MARAD has revised its contracting approach that has resulted in the termination of its use of PRDAs.

Background

As part of DOT, MARAD serves as the federal government's disposal agent for government-owned merchant vessels weighing 1,500 gross tons or more.¹⁰ MARAD's ship disposal program, in the Office of Ship Operations, is responsible for disposing of these vessels. Historically, MARAD has disposed of its obsolete ships primarily by selling them to overseas scrapping companies. From 1983 to 1994, MARAD scrapped over 200 vessels through overseas sales, which represented close to 100 percent of all of MARAD's scrapping activity. Ships were sold "as is/where is" to the highest bidder. The sale of vessels for overseas scrapping was curtailed in 1994 because of concerns raised by EPA about the presence of PCBs in various shipboard components. The Toxic Substances Control Act and EPA's implementing regulations govern the use of PCBs.¹¹ According to MARAD, the act and EPA regulations limit MARAD's ability to export vessels for disposal without first removing regulated PCBs. Ship scrapping is also subject to other federal, state, and local government laws that are meant to protect the environment and ensure worker safety. In addition, overseas disposal can be more complicated and time consuming because it requires the involvement of foreign governmental agencies and is subject to additional laws related to exporting hazardous materials. Similarly, disposing of ships through artificial reefing also requires coordination with several federal agencies.

¹⁰ 40 U.S.C. § 548.

¹¹ 15 U.S.C. 2601 et seq. and 40 Code of Federal Regulations (C.F.R.), Part 761.

After overseas sales were curtailed in 1994 and halted in 1998, MARAD had little success in selling its obsolete ships domestically, leading to a backlog of ships awaiting disposal. At the same time, the fleet had several well-publicized leaks, which raised concerns about the risk of continued storage.

In the 2001 Defense Authorization Act, Congress extended MARAD's deadline for disposing of all the vessels in the National Defense Reserve Fleet that are not assigned to the Ready Reserve Force component of that fleet or otherwise designated for a specific purpose as required by section 6(c)(1) of the National Maritime Heritage Act of 1994.¹² The 2001 Authorization Act moved the deadline from September 30, 2001, to September 30, 2006,¹³ and specified that MARAD dispose of vessels:

... in the manner that provides the best value to the Government, except in any case in which obtaining the best value would require towing a vessel and such towing poses a serious threat to the environment; and

... through qualified scrapping facilities, using the most expeditious scrapping methodology and location practicable. Scrapping facilities shall be selected... on a best value basis consistent with the Federal Acquisition Regulation, as in effect on the date of the enactment of this Act, without any predisposition toward foreign or domestic facilities taking into consideration, among other things, the ability of facilities to scrap vessels—

- (1) at least cost to the Government;
- (2) in a timely manner;
- (3) giving consideration to worker safety and the environment; and
- (4) in a manner that minimizes the geographic distance that a vessel must be towed when towing a vessel poses a serious threat to the environment.

The 2001 Authorization Act also required MARAD, within 6 months of its enactment, to provide Congress with a report on its program for disposing of ships and subsequent progress reports every 6 months thereafter. As of September 2004, MARAD had submitted two reports to Congress.¹⁴

¹² Pub. L. No. 103-451, § 6(c)(1).

¹³ Pub. L. No. 106-398, § 3502(a)(1) (2000).

¹⁴ A third report had been in draft but had not been approved. According to MARAD, the report was submitted to Congress in October 2004.

In its first report¹⁵ to Congress, issued in April 2001, MARAD stated that its primary goal for the ship scrapping program was to meet the statutory deadline. The report also provided a plan to dispose of all ships that MARAD expected would be in its inventory through the deadline. Highlights from the report included that MARAD would use fiscal years 2001 and 2002 to refine cost estimates specific to merchant type ships, and from fiscal years 2003 through 2006, would dispose of 35 ships per year mostly through domestic scrapping. MARAD, at that time, estimated that it would be able to scrap 140 ships at an average cost of \$2.5 million per ship and donate or reef 15 ships by the 2006 deadline. Also, in accordance with the statute,¹⁶ MARAD developed milestone dates for disposal of each ship and developed an approach that focused disposal efforts on its highest priority ships (ships in the worst condition) considering the condition of the vessel hulls; the amount, type, and location of potential pollutants on board; and the vessel spill history. MARAD stated it recognized that the immediate threat that these high-priority ships posed at the sites, in all likelihood, would result in using the domestic scrapping industry in the near term, and stated it would continue to seek innovative solutions to the challenging issue of ship disposal. MARAD also stated that, while there was much scrapping capacity overseas, exporting ships was banned by the Toxic Substances Control Act because PCBs can be found in shipboard systems.

The second report¹⁷ to Congress, issued in June 2002, indicated that MARAD no longer expected that it could meet the statutory deadline of September 30, 2006, if it used domestic scrapping as the predominate disposal method because no funds had been appropriated for the program in fiscal year 2002 and that the prospects for future funding were considered uncertain. The report also discussed an additional planned procurement method to contracting by negotiation, which was the use of PRDAs.

¹⁵ Department of Transportation, Maritime Administration, *A Report to Congress on the Program for Scrapping Obsolete National Defense Reserve Fleet Vessels* (Washington, D.C., April 2001).

¹⁶ Pub. L. No. 106-398, § 3502(d)(2) (2000).

¹⁷ Department of Transportation, Maritime Administration, *Report to Congress: Progress of the Vessel Scrapping Program* (Washington, D.C., June 2002).

At the time the 2006 deadline was set, the reserve fleet consisted of 115 vessels designated as obsolete and available for disposal. Of these, 40 were considered high priority for disposal because of their deteriorated condition. MARAD projected that another 40 ships would enter the fleet, for a total of 155 ships that it expected would need disposal. These ships are located at MARAD's three anchorages: with the James River Reserve Fleet (near Fort Eustis, Virginia) having the most ships and most of the highest priority ships; the Beaumont Reserve Fleet (Beaumont, Texas); and the Suisun Bay Reserve Fleet (near Benicia, California).

In disposing of its nonretention vessels, MARAD has usually had its excess ships dismantled, or scrapped—a labor intensive approach that poses certain environmental and worker safety risks. Ships are normally dismantled from the top down and from one end to the other, using torches and/or shears to cut away large parts of the vessel. Cranes are often used to move larger metal pieces to the ground where they can be cut into the shapes and sizes required by the foundry or smelter where the scrap will be sent. The scrapping process produces some products, such as steel and other metals, that can be sold to recyclers. Remediation of hazardous materials, such as asbestos, PCBs, lead, mercury, and cadmium, takes place before, as well as during, the dismantling process. If it is not done properly, ship scrapping can pollute the ground and water around the scrapping site and jeopardize the health and safety of the workers involved in the scrapping process. The following figures illustrate various stages of the scrapping process.

Figure 1: Ship during Early Stages of the Scrapping Process



Source: MARAD.

Figure 2: Partially Scrapped Ship in a Firm's Scrapping Facility



Source: MARAD.

Figure 3: Ship Near End of the Scrapping Process



Source: MARAD.

MARAD Is Unlikely to Meet 2006 Deadline

MARAD is unlikely to meet the statutory deadline of September 30, 2006, to dispose of its inventory of obsolete ships. Since October 2000, when Congress established the deadline, MARAD has disposed of only 18 ships, or about 12 percent of its inventory. There still remain more than 100 ships still needing disposal. MARAD's current approach, which has resulted in an average of about 5 ships disposed of per year, has not been sufficient to meet the deadline. The ship disposal program's slow progress stems primarily from program leaders not establishing a comprehensive management approach that better focuses the program's efforts on meeting the myriad of challenges that the program faces in eliminating its inventory in a timely and efficient manner. Key elements necessary for effective program management that are missing or inadequate include (1) no integrated strategy or milestones for meeting the 2006 deadline; (2) no identification of funding resources needed to meet the 2006 deadline; (3) inadequate performance measures; (4) inadequate identification of the

legal, regulatory, and environmental external impediments that could impact progress; (5) inadequate formal decision-making framework; and (6) no formal program evaluations. In the absence of a comprehensive management approach that includes all of these key elements, MARAD's ship disposal program lacks the vision needed to sustain a long-term effort. MARAD has also not provided Congress with all of the required reports on the program's progress. As a result, MARAD has not been able to ensure Congress that it can dispose of its obsolete ships in a timely way.

MARAD Has Made Slow Progress toward 2006 Deadline

Since October 2000, when Congress specifically authorized MARAD to pay for ship disposal services and set a September 30, 2006, deadline to dispose of all vessels, the agency has made slow progress toward achieving this goal. In 2000, MARAD reported that it had 115 ships in its inventory.¹⁸ Between October 2000 and September 2004, MARAD received 42 additional ships through transfers,¹⁹ bringing the total number of ships that needed to be disposed of to 157 (the beginning inventory of 115 plus 42 transfers). Of these 157 ships, 18 ships, or about 12 percent of the inventory (as of September 2004), had been disposed of, leaving 139 still in the inventory (see table 1).²⁰

¹⁸ Three of the original 115 ships in MARAD's inventory had existing sales contracts when the authorization to procure scrapping services was provided, and were subsequently scrapped.

¹⁹ The additional ships represent those that have been reclassified from MARAD's retention fleet or those transferred from the Navy.

²⁰ MARAD lists a ship in its inventory until it receives a destruction certificate from the ship scrapping company attesting to the fact that the disposal action has been completed.

Table 1: Number of Obsolete Vessels in MARAD's Inventory, Fiscal Years 2001-04

Obsolete vessels in inventory	Fiscal year				Total
	2001	2002	2003	2004	
On hand, start of year	115 ^a	134	133	132	NA
Transfers into fleet	20	7	2	13	42
Completed disposals	1	8	3	6	18
On hand, end of year	134	133	132	139	NA

Legend: NA = Not available.

Source: GAO analysis of MARAD Fleet Reserve Inventory Reports, Fiscal Years 2001-2004.

^aThis number includes three ships that had existing sales contracts prior to fiscal year 2001 but were included in the 2001 inventory.

Of the remaining 139 ships, as of September 2004, MARAD had awarded contracts for the disposal of another 29, leaving 110 ships that were still awaiting disposal actions. The status of the 29 ships under contract is as follows:

- Twenty ships are waiting to be moved to a scrapping company. Of these, 9 are awaiting a court ruling on whether MARAD will be able to export them to the United Kingdom.
- Four ships have been towed but have not begun scrapping. These ships were towed in October 2003 to the United Kingdom where they are waiting for a U.K. company to obtain the proper permits to scrap them.
- Five ships are either at scrapping facilities in the process of being dismantled or are en route to scrapping facilities.

Of the ships that have been part of MARAD's inventory since October 2000, more than 40 ships have been designated as high priority for disposal because of their severely deteriorating conditions. Ships in this category have had known holes in their underwater hulls that may or may not have been patched, and the potential for additional holes is considered to be moderate or high. Consequently, these ships are considered to pose the most immediate threat to the environment. Figure 4 shows (center) one of the high-priority ships in the James River Fleet awaiting disposal; MARAD awarded a contract to dispose of this ship in September 2004, but the ship had not yet been removed from the fleet.

Figure 4: A High-Priority Ship Awaiting Disposal in the James River Fleet



Source: MARAD.

Based on the average rate of ship disposal of about 5 per year, it is unlikely that MARAD will be able to get rid of the 110 obsolete ships that were in its September 2004 inventory by the 2006 deadline (assuming that all of the ships already under contract are disposed of by then). MARAD requested and received \$21.6 million to dispose of 15 ships in the fiscal year 2005 budget cycle and a yet-unspecified amount in its fiscal year 2006 budget. At the same time, MARAD expects to receive up to 30 more obsolete ships through transfers during the next 2 years. As table 2 shows, we estimate that MARAD will likely have more than 100 obsolete ships in its inventory in September 2006.

Table 2: Projected Number of Obsolete Vessels in MARAD's Inventory, Fiscal Years 2005-06

Obsolete ships in inventory	Fiscal year	
	2005	2006
On hand, start of year ^a	139	154
Projected transfers in	15	15
Projected disposals of ships under contract		29 ^b
Projected disposals under future contracts		30 ^c
Projected on hand, end of year	154	110

Source: GAO analysis of MARAD data.

^aThe number for fiscal year 2005 was the actual number of ships on hand and included one ship that had been sold but had not been completely disposed of. The on hand number for fiscal year 2006 is a projection. As of December 2004, 151 ships were on hand.

^bAssumes all ships under contract, including ships delayed by litigation, can be completely disposed of by end of fiscal year 2006, although some disposals may occur in fiscal year 2005.

^cAssumes that MARAD can meet its contract award projections in fiscal years 2005 and 2006 and that disposals can be completed by the end of fiscal year 2006, although some disposals may occur in 2005.

MARAD's Slow Progress Is due to Lack of Comprehensive Management Approach

Sound management principles, such as those embodied in the Government Performance and Results Act and used by leading organizations, include the need for developing approaches to meet program goals, measuring performance, identifying resource requirements, and reporting on the degree to which goals have been met. Combined with effective leadership, these elements provide decision makers with a framework to guide program efforts and the means to determine if these efforts are achieving the desired results. While MARAD has adhered to some of these principles, for example, by including the ship disposal program in its strategic and performance planning process, program leaders have not developed a comprehensive approach to better focus its efforts on overcoming the challenges related to eliminating its obsolete ship inventory in a timely manner. Key elements necessary for effective program management that are missing or inadequate include (1) an integrated strategy and milestones for meeting the 2006 deadline; (2) an identification of total resources needed to achieve the program's goals; (3) measures of progress toward achieving the goals; (4) identification of external factors, particularly those related to legal, regulatory, and environmental issues, which could impact the program's progress, and strategies to mitigate these factors;

(5) a decision-making framework; and (6) an evaluation and corrective action plan. Although the 2001 Defense Authorization Act²¹ required MARAD to submit a progress report on the program to Congress within 1 year of its enactment and every 6 months thereafter, the agency had submitted only three reports through December 2004. The following discussion focuses on the key elements that are missing or inadequate in MARAD's management approach.

- **Integrated strategy to meet stated goals and milestones for completing ship disposal.** Leading organizations have an integrated strategy that identifies program goals and specifies an approach and a timetable for completing the goals. While the program has a requirement to dispose of its entire inventory by September 2006 and MARAD has stated this requirement as one of its program goals, the program does not have a current strategy to achieve this requirement using the available disposal methods (e.g., domestic and overseas scrapping, sales, artificial reefing, deep-water sinking, or donations). In its 2001 report to Congress, MARAD proposed a general strategy for meeting the deadline by identifying 140 ships that could be scrapped through service contracts and 15 ships that could be disposed of by donations or artificial reefing. However, MARAD abandoned this approach in fiscal year 2002 when the program did not receive any funding, and since that time, it has not developed a new integrated strategy for disposing of all ships. Instead, MARAD officials told us that their current strategy consists of a market-based approach that is responsive to the current proposals made by interested parties. Based on these proposals, specific ships are matched to the various available disposal methods. These officials also stated that, in the rare instances where competing proposals exist for the same ship, MARAD makes a decision based on best value/best interest to the government. However, because this situation occurs infrequently and because the factors that need to be considered, such as cost and timing, vary greatly, MARAD does not document this decision-making process.

²¹ Pub. L. No. 106-398, § 3502(e) (2000).

Moreover, while MARAD has identified the expeditious disposal of high-priority ships (because of their poor condition) as another program goal, it has not always matched its planned disposal methods to this goal. For example, while past MARAD reports and briefings identified domestic disposal as the most expeditious method and indicated that this method would likely be used for some of its high-priority ships to minimize towing distance, MARAD awarded a ship disposal contract in 2003 to an overseas firm that included many high-priority ships, even though export was considered more complicated and time consuming. To determine the feasibility and advisability of exporting ships overseas for scrapping, in 2002, Congress directed MARAD to conduct at least one overseas pilot program for up to four ships.²² As part of this effort, MARAD worked with EPA to determine the circumstances under which the export of certain ships would be allowed. Subsequently, in 2003, MARAD awarded a scrapping services contract covering 13 ships,²³ which was 9 more than authorized by the pilot program, and included 10 that were considered to be high priority for disposal, to a company in the United Kingdom. Prior to selecting the ships to be included in the overseas contract, MARAD did not determine the high-priority ships' suitability for being towed across the ocean. According to program documents, one of the high-priority ships initially proposed for contract inclusion sprung a leak just before the contract was signed and was replaced by another ship. Subsequently, a citizen's group lawsuit led to a U.S. court limiting the number of ships that MARAD could initially export to 4 (consistent with the number that would comprise the pilot program). MARAD selected 4 ships for export that were among the ships in the best condition included in the contract, in part, because they could be prepared for towing the quickest, according to a program official. As a result, 7 of the highest priority ships included in the overseas contract remained at the fleet. In the following year, from June through September 2004, MARAD included these 7 high-priority ships (originally part of the contract to the overseas firm) in contract awards to domestic companies, to hasten their departure from the fleet since the court had not yet determined if these ships could be exported overseas.

²² 16 U.S.C. § 5405 note.

²³ The contract also included selling two unfinished ships.

In addition, MARAD does not have specific milestones to dispose of its entire inventory of obsolete ships. MARAD's 2001 progress report to Congress outlined an approach to meet the 2006 deadline, however, in its 2002 report to Congress, MARAD expressed concerns that it could not meet the deadline but did not provide a timetable for what it could achieve. In a 2004 progress report to Congress, MARAD proposed an alternative plan to meeting the statutory 2006 deadline. Instead of eliminating the entire obsolete ship inventory, MARAD suggested that it would dispose of the remaining ships in its inventory at a rate that would exceed the number of new vessels entering the fleet. MARAD would work toward an "end-state" with a target goal of eliminating the backlog of vessels that accumulated in the 1990s by September 30, 2006. MARAD's proposal would include removing all "high" and "moderate" priority ships (about 65) at a rate of 20 to 24 ships per year and keeping only "low" priority ships at the fleet sites. However, for fiscal year 2005, MARAD is planning to dispose of only 15 ships with the \$21.6 million that was appropriated.

- **Identification of resources needed to achieve goals.** Good management principles call for the identification of resources, including funding, which are needed to accomplish the expected level of performance. In its 2001 report to Congress, MARAD provided a general estimate of costs to dispose of its inventory of 155 ships by the 2006 deadline, and it stated that it planned to further refine cost estimates as additional data relating to merchant-type vessels were collected during fiscal years 2001 and 2002. However, these costs were not converted into a long-term funding plan linked to disposing of all obsolete ships by 2006. In addition, MARAD did not revise its cost estimates based on actual contracting experiences. For example, the 2001 report estimated that it would cost about \$350 million to scrap 140 of the 155 vessels—an average of about \$2.5 million per ship—using ship scrapping services contracts. However, MARAD's budget requests for ship disposal for fiscal years 2002 through 2005 have totaled only \$54.1 million, about one-sixth of the \$350 million estimate. Congress has appropriated a total of \$78.8 million over the same period. Table 3 shows MARAD's annual budget requests, associated appropriations, and the difference between the two.

Table 3: Differences between MARAD’s Budget Requests for Ship Disposal and Appropriations, Fiscal Years 2001-05

	Fiscal year					Total
	2001 ^a	2002	2003	2004	2005	
Budget request	NA	10.0	11.1	11.4	21.6	54.1
Direct appropriation	NA	0	11.1	16.1	21.6	48.8
Appropriations provided through the Navy	10.0	0	20.0	0	0	30.0
Total appropriated funds	10.0	0	31.1	16.1	21.6	78.8
Difference from budget request	NA	(10.0)	20.0	4.7	0	24.7

Legend: NA = Not applicable.

Source: GAO analysis of MARAD funding data.

^aMARAD did not request any fiscal year 2001 appropriations because it did not receive authorization to pay for scrapping services until late in the budget cycle.

MARAD officials said they did not incorporate the estimated costs to achieve the 2006 deadline into a funding plan because MARAD did not believe that Congress would fund the levels identified in its 2001 report and because they believed that environmentally sound, qualified foreign facilities that could scrap ships for less than the \$350 million estimate existed. Instead, MARAD officials said that their budget requests reflected a consistent funding level that they believed Congress would support; recognized the limited capacity of the most expeditious method (scrapping at domestic facilities); allowed MARAD to eliminate high-priority ships prior to the 2006 deadline; and provided a sufficient disposal rate while MARAD investigated and pursued potentially more cost-effective overseas alternatives.

- **Appropriate performance measures.** Although DOT’s and MARAD’s performance plans have tracked the ship disposal program’s progress since 2001, the department-level performance measures that are being used are not linked to the program’s goal of disposing of all obsolete ships by September 30, 2006. For example, MARAD’s 2004 performance plan links the ship disposal program to DOT’s facility cleanup performance goal, which aims to ensure that DOT operations “leave no significant environmental damage behind.” To measure progress toward the facility cleanup goal, MARAD’s performance measure uses the number of vessels that have been physically removed from the fleet for subsequent disposal rather than the number of ships that have been

completely disposed of as called for by statute. MARAD officials stated that the reason the chosen performance measure is not more directly linked to the statutory requirement is because of MARAD's recognition, in 2002, that the deadline was unachievable due to the program's inconsistent funding and disposal impediments. A MARAD official stated that tracking the number of removed ships as a performance measure is appropriate because removing ships contributes to the facility cleanup goal. However, using removal rather than disposal as a performance measure may obscure MARAD's actual progress toward achieving the disposal deadline cited in the statute. For example, MARAD counted toward meeting its fiscal year 2004 removal target the four ships that were towed to the United Kingdom in October 2003, but, as of November 2004, these ships were still fully intact and awaiting permit approvals before scrapping could begin. In another example, MARAD program officials reported to senior managers in March 2004 that the program had exceeded its fiscal year 2004 ship performance target for removals by 10 ships. However, 6 months later, only 3 of these ships had been completely disposed of. MARAD officials stated that they also use other measures not tracked in its performance plan. For example, the number of contracts awarded and ships disposed of are recorded continuously and frequently communicated to program officials. While we found that MARAD does collect the data, this information is not reported against established targets in its performance reports, reports to Congress, or budget requests making assessing program progress difficult.

Finally, MARAD's performance targets are set too low to complete the disposal of the 155 obsolete ships in MARAD's 2001 inventory by the 2006 deadline. As table 4 shows, MARAD's projected performance targets for the ship disposal program were to remove a total of 29 ships—less than 20 percent of the inventory—from the fleet for subsequent disposal from fiscal year 2001 to 2005.

Table 4: MARAD's Performance Targets for Removing Obsolete Ships from Fleet for Subsequent Disposal, Fiscal Years 2001-06

	Fiscal year						Total
	2001	2002	2003	2004	2005	2006	
Target for removal	3	3	4	4	15	NA ^a	29

Legend: NA = Not available.

Source: MARAD's fiscal year 2005 performance plan.

^aMARAD's 2006 target will be submitted with the fiscal year 2006 budget request.

MARAD officials acknowledged that while the targets were too low to meet the statutory deadline, they were more realistic and achievable given the program's constraints such as unpredictable funding. These officials stated that a more meaningful goal related to the statutory requirement would be to dispose of as many ships that represented the greatest risk to the environment, as possible, given the available resources. MARAD stated that it has reported this goal to focus on high-priority ships in its budget request and reports to Congress. While MARAD has stated this general goal, it has not developed specific performance measures with targets to track its progress toward achieving this goal.

- External factors and mitigation plans.** Good management practices include identifying external factors that may be impediments to program success and actions needed to mitigate these impediments. MARAD has cited a number of external factors that provide challenges to the ship disposal program in briefings and in some of its strategic planning documents. These challenges include domestic disposal capacity limitations; environmental, legal, and regulatory restrictions on export; and similar restrictions on other disposal options. Specifically, MARAD has stated that the existing domestic ship recycling capacity is very limited and must serve both MARAD's and the Navy's needs. Additionally, foreign disposal remains a challenge because of the Toxic Substances Control Act prohibition on the export of PCBs, the extensive regulatory requirements to obtain an exemption from the act, and legal challenges. As a result, MARAD has concluded that export is not commercially viable for ships containing PCBs. MARAD has stated that other options, such as artificial reefing, donations, and deep sinking of vessels, are also limited, in part, by the cost of preparing ships to meet environmental requirements. However, MARAD's plans do not clearly

describe the linkage between these factors and the program goals they impede or specify how their impact can be reduced. For example, while MARAD's strategic plan cites the lack of domestic disposal opportunities as an impediment to the program, the plan is not clear on how this impediment would keep MARAD from meeting its stated goal of completing the disposal of all of its high-priority ships or its target of removing 4 to 15 ships per year. Also, the plan does not specify the actions that MARAD might take that could increase domestic capacity or foster existing capacity. In addition, MARAD has taken a number of actions to address impediments related to overseas scrapping, artificial reefing, donations, and deep-water sinking, which may lead to some progress in the future. However, these actions do not appear to have been done in a systematic manner nor linked to specific program goals. Such an effort would allow MARAD to systematically identify and assess the factors that pose risk to the program, and would allow MARAD to prioritize its actions in order to increase the likelihood that its actions could successfully influence the factors that impede the program from meeting its goals. Until MARAD develops a process that focuses its actions on long-term program goals and appropriate performance measures, it will be difficult for MARAD to assess how external factors may impede program goals and the actions needed to reduce them.

- **Formal decision-making framework.** Successful organizations establish a decision-making framework that encourages the appropriate level of management review and approval, supported by the proper technical and risk analyses. A well-thought-out review and approval framework can mean program decisions are made more efficiently and are supported by better information. Some leading organizations have review processes in place that determine the level of analysis and review that will be conducted based on the size, complexity, and cost of the project. Projects that are crucial to the program's strategy usually require more analysis, support, and review than projects that have less organizationwide impact.

We found that MARAD's decision-making framework lacks many of these elements. For example, MARAD does not have a formal decision-making process that specifies how program oversight is to be provided and what decisions need to be reviewed by senior leadership, and it has no formal program documents that describe how the various offices will interact. MARAD has some policies that generally describe roles and responsibilities for key offices involved with ship disposal. According to these policies, the MARAD Administrator is to provide

general direction and supervision to the Associate Administrator for National Security, whose responsibilities include the executive direction of the Office of Ship Operations. Within this office is the Ship Disposal Program Office that, in coordination with other offices, develops and administers the ship disposal program. MARAD officials stated that while the process is not well documented, they believed that program participants understood their roles and responsibilities and that senior management is aware of issues affecting the program. MARAD does not follow a formal process that uses written guidance and does not have an approved program plan that addresses all elements of the program. In addition, MARAD program officials could not provide us with analytical results to support key program decisions. For example, MARAD did not have an analysis to support its position that domestic ship scrapping capacity is limited, which led it to consider foreign scrapping capacity to be of greater importance to the program. MARAD officials stated that the capacity and capabilities of the domestic industry were obvious through the data associated with the industry responses to disposal solicitations. These officials stated that ship disposal is not a growth industry in the United States and a formal capacity analysis would not have benefited the program because the results would have been largely theoretical. Instead, these officials told us that the domestic industry's cost-effective capacity is evident through the proposals received during disposal solicitations. We disagree that there would be no benefit to conducting a capacity analysis. Such an analysis could provide the basis to determine throughput levels for planning purposes in developing funding plans for the program. While MARAD stated that ship disposal is not a growth industry, in 2004, MARAD awarded contracts to two firms that had not participated in past solicitations.

- **Program evaluation and corrective action plans.** Program evaluations are defined as objective and formal assessments of the results, impact, or effects of a program or policy. Such information can be used to assess the extent to which performance goals are met and identify appropriate corrective actions for achieving unmet goals. While MARAD had not performed an evaluation since it received its new authority in fiscal year 2001, officials stated that the agency initiated the program's first evaluation in June 2004 and expects to complete it as early as January 2005. This evaluation could identify any corrective actions that may be needed for the program to improve its performance.

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- **Periodic progress reports to Congress.** The 2001 Defense Authorization Act required MARAD, within 6 months of its enactment, to provide Congress with an initial report on the disposal program and to submit progress reports every 6 months thereafter. Since 2000, MARAD had submitted only three out of a possible eight reports that were required to communicate the program's status through December 2004. In April 2001, MARAD provided its initial report to Congress addressing aspects of its plan. In June 2002, it submitted a second report updating the program's status since the 2001 report. A third report, which had been in draft format for over a year, was submitted to Congress in October 2004.²⁴ Failure to provide these reports has left Congress without information that could be useful in its decision-making process.

As a result of weaknesses in MARAD's management approach, the program lacks a clear vision to guide program decision making concerning the ship disposal program. Missing management elements such as the lack of an integrated strategy, resource identification, and inadequate performance measures reflect this lack of a vision and undermine MARAD's efforts to sustain a long-term effort. In addition, MARAD has not been able to provide Congress and other stakeholders with a reasonable timetable and the associated annual funding requirements needed to meet the 2006 deadline, nor has it clearly articulated the areas that congressional assistance may be needed to expedite the disposal of these deteriorating ships that continue to pose potentially costly environmental threats to the waterways near the sites where these ships are stored.

MARAD Has Made Limited Use of Alternative Disposal Methods because of Several Barriers

Although Congress directed MARAD in fiscal year 2001 to consider alternative methods in designing its ship scrapping program, the program has made only limited use of these methods—artificial reefing, deep-sea sinking, and donations—because of a number of environmental, financial, and legislative barriers. With the support of Congress, MARAD has recently taken a number of actions to address these impediments. Despite these positive steps, MARAD may still be years away from increasing the number of disposals using these alternative methods. MARAD has not developed an overall plan that could increase the use of alternative disposal methods.

²⁴ Department of Transportation, Maritime Administration, *Report to Congress: Progress of the Vessel Disposal Program* (Washington, D.C., June 2004).

In fiscal year 2001,²⁵ Congress directed MARAD to consider alternative methods in designing its ship scrapping program. However, MARAD has used an alternative method for ship disposal—artificial reefing—only once since that time, and work on this disposal action started prior to 2001 (see table 5). At the same time, MARAD has not yet disposed of any ships through deep-water sinking or ship donations. Instead, MARAD has focused on ship scrapping—either by awarding contracts or selling the ships to scrapping firms to dismantle them—to dispose of 17 of the 18 ships for which it has completed disposal actions. MARAD officials told us they are currently reviewing applications to dispose of 5 ships through artificial reefing and are holding 4 ships for donations, although few of these actions are likely to be completed by the statutory deadline.

Table 5: Completed Disposals by Disposal Method for Fiscal Years 2001-04

Method of disposal	Fiscal year				Total
	2001	2002	2003	2004	
Scrapping services (contracts)	1	4	3	5	13
Scrapping (sales)	0	3	0	1	4
Artificial reefing	0	1	0	0	1
Deep-water sinking	0	0	0	0	0
Donation	0	0	0	0	0
Total	1	8	3	6	18

Source: GAO analysis of MARAD provided data.

MARAD Has Taken Recent Steps to Address Barriers to Use of Artificial Reefing, Deep-Water Sinking, and Donations

Recently, in response to congressional direction, MARAD has taken a number of steps to address several barriers that have limited its use of alternative disposal methods. These barriers have included environmental factors related to the removal of hazardous materials (remediation) from obsolete ships, the financial costs to remediate these ships, and the legislative barriers to donating ships to historical organizations. MARAD's actions to facilitate the use of alternative methods are discussed below.

Artificial Reefing Program

MARAD officials have identified artificial reefing as having the greatest potential for use among the alternative methods and are currently

²⁵ Pub. L. No. 106-398, § 3502(d)(3).

evaluating reefing applications from four states that cover five ships. MARAD officials are optimistic that one of the five ships being evaluated for reefing may be sunk as early as 2005. Under the artificial reef program, MARAD transfers obsolete ships to states or other jurisdictions to be submerged as part of a state-managed program to build artificial reefs that benefit marine life, commercial and sport fishing, and recreational diving. From 1973 to 1992, MARAD transferred 46 ships to coastal states to be used as artificial reefs but, since 2001, it has disposed of only one ship through reefing, partly because of unresolved environmental issues.

MARAD has identified several obstacles that have hindered its ability to use reefing, and the agency has recently taken some actions toward facilitating the use of this method. Four of the obstacles and MARAD's actions include:

- **Lack of national environmental standards to prepare ships for artificial reefing.** According to MARAD officials, concerns about environmental contamination, especially PCBs, have stifled the artificial reefing program in recent years, and plans for preparing vessels for reefing have been complicated by the lack of consistent standards for environmental remediation. Congress, in 2002, directed MARAD and EPA to jointly develop best management practices (national guidelines) for preparing ships for the artificial reef program.²⁶ In June 2004, EPA published draft national guidelines.²⁷ The guidelines require, among other things, the removal of PCBs greater than 50 parts per million throughout a ship and asbestos in areas of a vessel that could be disturbed by explosives used to sink the vessel. Once adopted, the guidelines should provide MARAD and the states participating in the artificial reef program with clear criteria for removing hazardous materials from ships.
- **Cost of preparing/remediating vessels.** According to MARAD officials, the states have been reluctant to take on the responsibility of towing, preparing, and sinking ships for artificial reefing because of the potentially high costs they could incur. To address this issue, MARAD requested and in 2002 Congress provided it with authority to provide financial assistance to states to tow, prepare, and sink reef candidates.²⁸

²⁶ Pub. L. No. 107-314, § 3504(b)(1) (2002).

²⁷ See <http://epa.gov/owow/oceans/habitat/artificialreefs/guidance.html>.

²⁸ 16 U.S.C. § 1220c-1.

Since 2002, MARAD has received applications from four states to sink a total of five ships, one possibly as early as 2005. Other applications have been delayed, partly because of the lack of funding to prepare ships for reefing.

- **Need to streamline application process.** To sink obsolete ships to form an artificial reef, MARAD and the states have to coordinate their efforts with a number of government agencies, including the U.S. Army Corps of Engineers, the U.S. Coast Guard, and EPA. According to MARAD, states typically require about 9 months to complete this coordination. MARAD and other agencies have been working to streamline the process. For example, the Navy and MARAD have established a joint reef application process for soliciting, receiving, and evaluating applications from interested states. The joint process will allow MARAD and the Navy to share resources to achieve common reefing goals.
- **Limitation of program to the United States.** Prior to fiscal year 2004, reefing candidates were restricted to state governments within the United States. MARAD requested and received congressional authorization in fiscal year 2004 to accept applications from U.S. territories and foreign governments for reefing.²⁹ MARAD has received several inquiries since it received this new authority. For example, MARAD has had significant interest from the Cayman Islands for a reefing project.

Deep-Water Sinking Program

MARAD has taken actions that could result in it disposing of a few of its ships through the Navy's Sinking Exercise (SINKEX) program, which involves sinking ships in deep water for weapons development testing and evaluation and for fleet training exercises. In September 2003, MARAD and the Navy developed a memorandum of agreement to include ships in MARAD's inventory in the Navy's SINKEX program. According to MARAD, as with the other disposal methods, deep-water sinking requires the removal of environmentally hazardous materials from ships before they are sunk. According to MARAD and discussions with the Navy, most of MARAD's high-priority ships do not meet the Navy's needs because of their advanced deterioration. As a result, MARAD considers deep-water sinking a low-volume option even though the estimated costs are lower than scrapping. MARAD has set a goal of disposing of one or two ships a year

²⁹ Pub. L. No. 108-136, § 3516(c) (2003).

through this method. However, the one ship that was scheduled, and had been prepared by the Navy for deep-water sinking, had to be withdrawn when it was determined that the ship had historical significance and thus was not suitable for the Navy's program.

Vessel Donation

As a result of recent congressional action, MARAD's use of a third alternative disposal method—the ship donation program—may increase in the future. Until 2003, MARAD could donate ships to qualified groups only through special congressional legislation that designated a specific ship, the recipient, and the conditions under which the donation would take place. According to MARAD officials, the agency has set aside four ships under this process, making them ineligible for disposal through other methods unless their condition deteriorates. This process has been lengthy, primarily because recipient groups needed time to raise money to acquire, restore, and operate a ship for its intended use. In some cases, ships that are on hold for a donation may be removed because the recipient group has not been able to make significant progress to complete the donation requirements. As table 6 shows, two ships (*Hoist* and *Sphinx*) are currently in this status.

Table 6: Current Status of Congressionally Designated Ship Donations

Name of ship	Date of legislation	Legislation expiration date	Current status of donation
<i>Hoist</i>	Nov. 2003	Nov. 2005	Donation hold will likely be removed at expiration due to lack of recipient's progress
<i>Sphinx</i>	Dec. 2002	Dec. 2004	Donation hold will likely be removed at expiration due to lack of recipient's progress
<i>Glacier</i>	Oct. 2000	Oct. 2002	Donation hold maintained based on recipient's progress
<i>Hattiesburg Victory</i>	Nov. 1998	None	Donation hold maintained but completion date not determined

Source: MARAD.

At MARAD's request, Congress, in 2003, gave the agency authorization to establish a donation program that would allow it to donate ships directly to groups interested in acquiring and preserving ships that have historic significance. This change would eliminate the time-consuming procedure of interested groups needing special legislation for each donation.³⁰ MARAD established its donation program in July 2004 and indicated that accepted applications would be valid for 1 year with two 6-month extensions possible based on an applicant's progress in meeting the milestones presented in its business plan. However, the program does not have the authority to provide potential recipients with direct financial assistance—a barrier to progress in the past. MARAD officials have said that the high costs associated with the indefinite preservation of ships for historical purposes make it unlikely that the agency could provide significant assistance, even if the authority was provided.

MARAD Has Not Developed an Overall Plan to Increase Usage of Alternative Disposal Methods

Despite the steps it has taken recently, MARAD faces some additional challenges to using alternative disposal methods. Since its first report to Congress in 2001, MARAD has not conducted a systematic assessment of its ship inventory to determine the most cost-effective and efficient method for getting rid of individual ships. In addition, it has not developed policies that would enhance the use of alternative disposal methods. For example, while MARAD now has authority to share artificial reefing costs and can provide funds to remediate ships in its inventory, it does not have specific policies to guide it in determining how much funding it should set aside for cost sharing or for remediating ships to make them more readily transferable as part of the artificial reefing or donation program. MARAD officials told us that their approach is to make all ships available for all disposal methods with few exceptions. According to these officials, this approach allows states and historical preservation groups to select ships according to their preferences without any restrictions. In the past, this approach has led to some cases in which recipient groups selected ships that were in the worst condition. For example, two of the four ships that have been placed on hold for donation have had poor hulls, and MARAD officials plan to remove these from hold status. Because of the lack of an overall approach, MARAD may be losing opportunities to dispose of more of its obsolete ships in the most cost-effective and expeditious manner.

³⁰ Pub. L. No. 108-136, § 3512 (2003).

MARAD's Use of PRDAs to Scrap Ships Is Inappropriate

Since fiscal year 2002, MARAD has inappropriately used a procurement method—PRDA—to acquire most of its ship disposal services rather than other procurement methods that are appropriate for acquiring such services. According to MARAD, PRDAs are a variant of broad agency announcements, an authorized procurement process under the FAR and the Competition in Contracting Act of 1984 (CICA). PRDAs are designed to enable federal agencies to acquire basic and applied research and that part of development not related to the development of a specific system or hardware procurement. MARAD officials cited several reasons for using PRDAs, including seeking innovative solutions to ship disposal, attracting more industry proposals, and reducing costs. Our analysis of MARAD's PRDAs and contracts awarded under PRDAs through February 2004 showed that MARAD was not using PRDAs to acquire research or development but to procure conventional ship scrapping services. In addition to being inconsistent with CICA and the FAR, MARAD's use of PRDAs to acquire ship scrapping services has led to a lack of transparency and raised questions about the fairness of MARAD's contract award process.

MARAD's Rationale for Using PRDAs

According to MARAD, PRDAs are a variant of broad agency announcements³¹ and meet the requirements of the FAR for the use of these announcements. MARAD officials explained that the agency chose to use PRDAs for a number of reasons. MARAD officials said that they have used PRDAs to seek innovative, private-sector solutions for controlling ship disposal costs and, at the same time, to gain insights into domestic and international dismantling and recycling market costs. MARAD officials pointed out that market cost data were particularly important when the program did not receive appropriated funds in fiscal year 2002. According to MARAD, the use of PRDAs provides greater flexibility as it allows interested parties to propose methodologies that are broader than those received in response to other solicitations. In addition, MARAD officials said that they used PRDAs to attract a larger number of proposals from qualified firms than they had received under other methods. MARAD officials also told us that their use of PRDAs had contributed to the significant lowering of disposal prices through greater industry participation and increased competition.

³¹ 48 C.F.R. § 35.016. Hereinafter, all references to title 48 of the Code of Federal Regulations will be to ("FAR").

Since fiscal year 2002, MARAD has used PRDAs as its primary procurement method. According to MARAD, the agency has used PRDAs to solicit proposals for the disposal of over 130 different obsolete ships and has awarded contracts for 34 of those ships. In addition to PRDAs, MARAD has used other procurement methods—contracting by negotiation, under which an agency issues a request for proposals,³² and sealed bidding, under which an agency issues an invitation for bids³³—to award contracts to scrap 6 ships in 2001 and 4 ships in 2003.

Our Assessment of MARAD's Use of PRDAs

Under the FAR, broad agency announcements are used to acquire basic and applied research and that part of development not related to the development of a specific system or hardware procurement.³⁴ Agencies can use this method to fulfill their requirements for scientific study and experimentation directed toward advancing the state of the art or increasing knowledge or understanding.³⁵ According to the FAR, agencies should use this method only when meaningful proposals with varying technical approaches can be expected. Although the FAR considers broad agency announcements a competitive procurement method, proposals do not have to be evaluated against one another since they are not submitted against a common work statement. Regardless of MARAD's stated

³² Requests for proposals are used to solicit offers from prospective contractors where awardees are selected through technical evaluation and with negotiation permitted with prospective contractors. Part 15 of the FAR generally governs the use of requests for proposals.

³³ Using an invitation for bids, an agency solicits sealed bids where price or price-related factors are the determinative factor for award and when it is not necessary for the government to discuss the technical aspects of bids. Part 14 of the FAR generally governs the use of invitations for bids.

³⁴ According to FAR § 2.101, basic research is research directed toward increasing knowledge in science. The primary aim of basic research is a fuller knowledge or understanding of the subject under study, rather than any practical application of that knowledge; according to FAR § 35.001, applied research is the effort that (a) normally follows basic research, but may not be severable from the related basic research; (b) attempts to determine and exploit the potential of scientific discoveries or improvements in technology, materials, processes, methods, devices, or techniques; and (c) attempts to advance the state of the art; and development is the systemic use of scientific and technical knowledge in the design, development, testing, or evaluation of a potential new product or service (or of an improvement in an existing product or service) to meet specific performance requirements or objectives.

³⁵ FAR § 35.016(a).

purposes for using PRDAs, their use must be consistent with CICA and the FAR.

Generally, CICA requires executive agencies in conducting procurements for property or services to “obtain full and open competition through the use of competitive procedures.”³⁶ Under CICA, “competitive procedures” include “the competitive selection of basic research proposals resulting from a general solicitation and peer review or scientific review (as appropriate).”³⁷ This provision is implemented by FAR sections 6.102 and 35.016. FAR section 6.102 describes “other competitive procedures” that meet the requirement for full and open competition. That section provides that:

[c]ompetitive selection of basic and applied research and that part of development not related to the development of a specific system or hardware procurement is a competitive procedure if award results from—(i) A broad agency announcement that is general in nature identifying areas of research interest, including criteria for selection of proposals, and soliciting the participation of all offerors capable of satisfying the Government’s needs; and (ii) A peer or scientific review.³⁸

The FAR, in this respect, implements the requirements of CICA by allowing agencies to use the broad agency announcement as a means to obtain research or development. It follows, and we conclude, that an agency may only use broad agency announcements, or any variant of that process, to acquire research or development in order to comply with CICA and the FAR. Our analysis indicates that MARAD is not using broad agency announcements, or PRDAs, to acquire research or development; rather it is inappropriately using them to acquire ship scrapping services.³⁹

An appropriate use of PRDAs would have allowed MARAD to solicit proposals and award contracts for research or development that sought to advance the state of the art or increase knowledge. In other words, MARAD could have sought innovation in the ship scrapping industry through research or development contracts. PRDAs we reviewed, however, did not

³⁶ 41 U.S.C. § 253(a).

³⁷ 41 U.S.C. § 259(b).

³⁸ FAR § 6.102(d)(2).

³⁹ Although we reviewed the appropriateness of MARAD’s contracting process, our review is not related in any way to the statutory bid protest function of the Comptroller General under CICA.

seek proposals to perform research or development. Rather, along with innovative approaches for ship disposal, the PRDAs indicated that proposals should address environmental and worker safety considerations, production throughput/capacity, experience with ship disposal, and funding requirements. With respect to funding, the PRDAs did not ask firms to explain their costs to research or develop new methods or approaches for ship disposal; instead, the PRDAs specified that funding “must be proposed in sufficient detail to show all anticipated costs associated with the complete dismantlement of the vessel(s), including cost categories such as towing, remediation of hazardous materials, labor costs, etc., as appropriate.” Thus, rather than soliciting proposals to perform research or to develop new methods or technologies to scrap ships, MARAD’s PRDAs essentially contemplate the award of production contracts to firms with ship disposal experience.

In addition, the results of MARAD’s evaluation approach appeared to give greater weight to the disposal of ships rather than obtaining innovation, research, or development. In our review of MARAD’s evaluations for more than 70 proposals submitted under PRDAs from November 2001 through March 2003, we found that MARAD had not accepted proposals that were identified in program evaluations as having innovative approaches or research or development. For example, one evaluation summary stated that the proposal was rejected because it would not result in the disposal of ships but only in the testing of a hazardous material remediation technology and that PRDAs were not intended to solicit proposals of untested technologies. Another evaluation summary stated that only one ship would be disposed with no cost advantage to MARAD and with no guarantee of discovering methods or efficiencies that could be applied to the ship dismantlement industry to MARAD’s benefit. On the other hand, proposals that MARAD provisionally accepted for further consideration were described in the evaluations as providing conventional ship dismantling or recycling services and in many instances acknowledged that the proposals did not contain innovations.

We also found that MARAD did not award contracts that required innovation or research or development. Our analysis of six contracts awarded under PRDAs through February 2004 also showed that none of the contracts specifically required innovative approaches in disposing of ships. Instead, the contracts provided for conventional ship scrapping services, with requirements, time lines, schedules, costs, and objectives clearly

spelled out, contrary to most research and development contracts.⁴⁰ For example, a contract between MARAD and Post-SVC Remediation Partners, which was effective July 25, 2003, specifies that the contractor is to tow 13 vessels from their current location (at the James River Reserve Fleet and Portsmouth Naval Base) to the United Kingdom and completely “dispose of, dismantle and remediate. . .[the] vessels by 31 December 2005.”⁴¹ MARAD officials stated that their dismantling contracts contained performance schedules and outcomes as part of the government’s responsibility to monitor contractor performance; however, these officials stated that MARAD did not mandate the methodology by which the contractor was to dispose of the vessels. MARAD officials stated that because their contracts are performance based, the contractors are responsible for determining how they will comply with the terms of the contract, thereby giving them flexibility during the dismantling operations. While we agree that the use of a research or development contract would not alleviate the government’s responsibility for oversight, we do not believe that MARAD acquired the innovative service it indicated PRDAs were designed to obtain. In our view, the contracts were for ship scrapping.

In addition, MARAD may not need to specifically acquire innovation to expeditiously scrap ships. Industry representatives told us the process of scrapping a ship does not require innovative approaches. Industry officials said that ship scrapping is a fairly straightforward activity, and most companies are using similar techniques to dispose of ships. They pointed out that the basic technology for scrapping a ship involves removing environmentally hazardous materials and then dismantling the ship with a cutting torch. They said that while companies might use different processes, the core technology did not change. The representatives said that they had not developed any innovative approaches in response to MARAD’s PRDA process, and officials at one firm said that they had not responded to MARAD’s first PRDA solicitation because they did not believe their company was eligible to participate since it had no new technologies or innovations to offer. However, once they learned that a competitor was obtaining ship scrapping contracts through the PRDA process, they too submitted proposals under PRDAs and were subsequently awarded contracts for ship disposal. MARAD officials told us that the agency has

⁴⁰ FAR § 35.002 states that “unlike contracts for supplies and services, most research or development contracts are directed toward objectives for which the work or methods cannot be precisely described in advance.”

⁴¹ Section C1.5, Towing Schedule.

seen several innovations from domestic and foreign contractors as a result of the PRDA process. Specifically, they pointed to the application of technological advances such as hydraulic, articulated shears and high pressure, water-cutting technology that have distinct advantages over the traditional use of cutting torches, as well as the use of the dry basin for dismantling of vessels, and improved business processes in the contract performance. However, we did not see any evidence that the use of these technologies was required by the terms of the contracts. More importantly, the use of these technologies does not make the contracts research or development contracts.

While MARAD officials claimed that more firms had responded to PRDA solicitations than to other solicitation methods, we found that MARAD did not consider several other factors that could have affected participation. MARAD officials said that between 2001 and 2004, the agency received proposals from 71 firms (57 from October 2001 to March 2003 and 14 from January 2004) through PRDA solicitations, compared with 13 firms (8 in 2001 and 5 in 2003) through invitations for bid and requests for proposals (see table 7). However, the higher responses may have been due to the number of ships offered and their condition. For example, while the PRDA solicitations included around 100 ships and were open to domestic and foreign firms, solicitations by other methods were limited to a few high-priority ships and were open only to domestic firms because of concerns about long tows to the scrapping sites. Other factors, such as the ship disposal program's larger appropriations in 2003 and 2004 and a rise in the price of scrap metal (making scrapping more profitable for the industry), could also have affected participation. In addition, there is no evidence to suggest the response that other procurement methods might have received would have been any different, since most ships were only offered under PRDAs. Moreover, several firms we contacted said that PRDAs had not positively influenced their decision to make offers to scrap ships over other procurement methods.

Table 7: Comparison of Industry Participation in PRDAs Versus Other Solicitation Methods

	2001 Invitation for bid/ Request for proposal	Oct. 2001 to March 2003 PRDA	2003 Invitation for bid	Jan. 2004 PRDA
Number of ships offered	12	131	4	97
Total number of firms	8	57	5	14^a
Domestic proposals	8	34	5	7
Foreign proposals	0	23	0	9

Source: MARAD.

^aThe sum of domestic and foreign proposals is greater than the total number of firms because some firms submitted both domestic and foreign proposals.

In addition to being inconsistent with CICA and the FAR, MARAD's use of PRDAs has provided less transparency than other available solicitation methods. For example, under an invitation for bids, bids are publicly opened and typically are available for examination by competing vendors.⁴² Under a request for proposals, competing vendors are given written notice of the reason they are excluded from the competition and are given an opportunity for a debriefing explaining the agency's award decision.⁴³ By contrast, proposals submitted under PRDAs are often difficult to compare with other proposals because they do not generally cover a specified statement of work or a set number of ships. Consequently, firms are often unable to determine why their proposal was not selected over another proposal. Moreover, MARAD officials were not able to tell us what criteria they used to award the six contracts we reviewed. For example, when they conditionally accepted proposals from two different firms, they could not explain what criteria they used to ultimately award a contract to one firm rather than the other. The domestic ship scrapping contractors with whom we spoke agreed that there was no way to determine why a particular company got a contract.

⁴² FAR § 14.402-1.

⁴³ FAR §§ 15.503, 15.505, and 15.506.

This lack of transparency confuses and can alienate ship scrapping contractors. In discussing their experience with MARAD's PRDA process, several ship scrapping contractors told us that although they had received contracts, they perceived inconsistencies in MARAD's use of PRDAs. For example, they said that often a long time passes between the acceptance of a proposal by MARAD and the award of a contract. Industry officials said that although MARAD had informed them that their firm's proposal was acceptable, MARAD took no further action on their proposal for more than a year. During this time, MARAD conducted negotiations with other firms over disposal issues, including the number of ships, the specific ships, and the cost. Some firms questioned MARAD's ability to assess the best proposal if it is negotiating only with selected firms. Delays in awarding contracts affect the ship scrapping contractors because of the volatile nature of the scrap metal market.

Other Procurement Methods Could Provide Similar Benefits

At the beginning of the ship scrapping program in fiscal year 2001, MARAD had planned to use another procurement method—contracting by negotiation—in which an agency issues a request for proposals. MARAD expected to use requests for proposals to dispose of vessels that were in the worst condition and designated as high priority. It planned to use this method to award multiple contracts to various ship scrapping companies in different locations, using long-term, indefinite delivery, indefinite quantity (IDIQ) contracts. These contracts were to specify a minimum initial quantity of high-priority ships to be scrapped but could subsequently be used to award additional ships to the same firms within a certain time period. MARAD expected to award contracts to a minimum of three companies to scrap at least one ship, and these companies would have the opportunity to scrap additional ships. However, MARAD officials said that when the agency did not receive any fiscal year 2002 appropriations for the ship disposal program, it shelved these plans. Instead, it turned to PRDAs for almost all of its contracts.

While MARAD stated that other acquisition methods, such as requests for proposals and invitations for bids, do not allow offerors to submit solutions outside of the defined government requirements as could be done with PRDAs, MARAD did not provide a convincing case as to why these solutions were necessary to dispose of the ships that were in the worst condition as quickly as possible. In fact, MARAD stated in its briefing documents, PRDA solicitations, and reports to Congress, that it anticipated that it would use methods other than PRDAs to address the worst ships. While MARAD has also said that requests for proposals and invitations for

bids do not accommodate numerous proposals of varied solutions based on each offeror's business model, we found that they can provide some flexibility for both the government and the offeror. For example, in a 2003 invitation for bids for four ships, MARAD stated that it could award each ship separately or make multiple awards for any combination of ships. As noted earlier, MARAD could also use a request for proposals to select from a pool of qualified firms to propose on an indefinite quantity of ships as funding became available. Moreover, other federal agencies have used IDIQ contracts as a flexible procurement tool when funding is uncertain. For example, Navy officials told us that they used this method to gain flexibility in awarding contracts for the Navy's ship disposal program when unanticipated end-of-year money became available. Since fiscal year 1999, the Navy has used requests for proposals to award IDIQ contracts to scrap 36 ships.

Overseas Competition Just One Factor Contributing to Lower Prices

While we could not isolate the specific impact of foreign competition and other factors on reducing the cost of ship disposal, MARAD attributes the overall decrease in ship disposal costs almost exclusively to overseas competition. However, other factors, such as larger annual program funding allowing for more ships per contract and increases in the scrap value of steel, may have also played a role. As table 8 indicates, the price of contracts that MARAD has awarded since 2001 has generally decreased. These decreases included an instance where solicitations were geographically restricted to domestic firms only—because of the deteriorated condition of some ships. In 2001, MARAD paid contractors an average of about \$250 per ton to scrap ships. This average price fell to about \$109 per ton in 2004—a decrease of about 56 percent.

Table 8: Price Trends for Contracts by Fiscal Year Awarded

	2001 Domestic only proposals	2003 Domestic and foreign proposals	2003 Domestic only proposals ^a	2003 Domestic only proposals	2004 Domestic and foreign proposals
Number of ships offered	12	131	1	4	97
Number of ships awarded	6	22	1	3	12
Price per ton (of ships awarded)	\$250	\$102	\$762	\$179	\$109

Source: MARAD.

^aThe ship involved in this proposal was unique in that it required disposal in place.

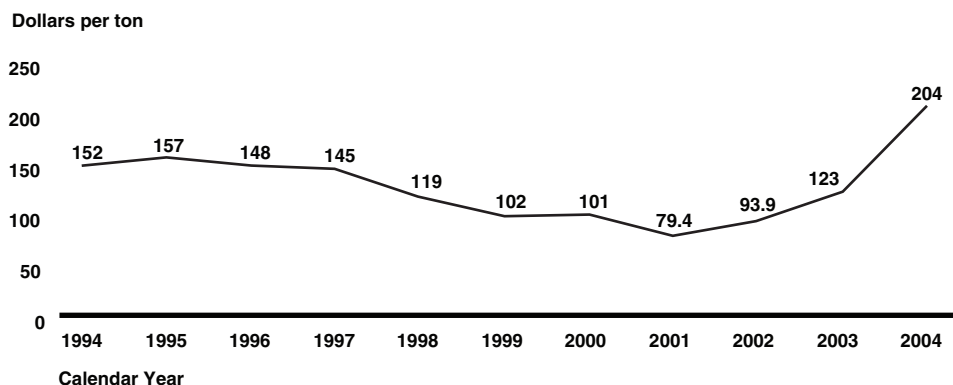
In its 2004 report to Congress, MARAD attributed the drop in contract prices to increased competition due to the inclusion of foreign firms since it had received more proposals when international firms have been included. However, while the overall price dropped from 2001 for two solicitations that included both domestic and international companies, it also decreased for one of the domestic solicitations that excluded foreign competition. According to industry officials, however, other factors, such as the condition of the ship, the amount of remediation that is required, and the potential recovery from recyclable material, can affect bid prices; thus, average prices based on tonnage alone may not be very meaningful if the amount of hazardous materials present on the ships varies.

An increase in appropriations for the ship disposal program since 2003 may also have contributed to lower contract prices by allowing larger contracts that can benefit from a greater economy of scale. As table 3 shows, the program received \$10 million in fund transfers from the Navy in fiscal year 2001 and no appropriated funding in fiscal year 2002. However, since fiscal year 2003, MARAD has received an annual average of about \$23 million. This level of funding has likely attracted new interest among firms. According to MARAD officials, they have received proposals from companies that had not participated previously and have awarded contracts to some firms for the first time in 2004. Several industry representatives told us that MARAD's higher funding levels allowed them to offer proposals that represented greater economies of scale, thus lowering costs. For example, one firm we visited was awarded a contract in 2003 to dispose of five ships, and three other firms received contracts to dispose of

three ships each in 2004. By contrast, only one firm received a contract to dispose of two ships in 2001.

A rise in scrap metal prices since 2003 has also contributed to lower bid prices. Representatives from firms we contacted said that higher scrap metal prices contributed to a large degree to their ability to offer lower prices for scrapping ships in recent proposals because they could expect to recover more of their costs from recycling the metal. Figure 5 shows the increase in average yearly international scrap steel prices since about 2002.

Figure 5: Annual Average International Scrap Steel Prices, 1994-04



Source: GAO analysis of data from Iron Age Scrap Price Bulletin.

While several firms' representatives said that the participation of foreign companies did not have an affect on their offers, in at least one case domestic prices seem to have been influenced by foreign competition. According to MARAD officials, one domestic firm reduced its previous proposal by about 50 percent when it learned that MARAD was in the latter stages of contract negotiations to export several ships to a foreign firm. The domestic company made its new offer about 6 months after its original offer, and it included many of the ships that were under negotiations with the foreign firm. MARAD officials told us that subsequent offers from this and other domestic firms have been lower since MARAD awarded the contract for foreign export.

Conclusions

Although MARAD's ship disposal program has made some strides in reducing its inventory of obsolete and deteriorating merchant ships in the National Defense Reserve Fleet, it has managed to dispose of only 12 percent of its original 2001 inventory, and it is unlikely to meet the already extended deadline of September 30, 2006, to get rid of the entire inventory. The strides that MARAD has made have been facilitated by congressional appropriations of almost \$80 million—almost \$25 million higher than requested—to procure ship scrapping services during fiscal years 2001 through 2004 and by congressional support that helped streamline the ship donation program and encouraged the development of environmental standards for the artificial reefing program.

However, these steps have not been enough to better ensure long-term program success. MARAD's program currently does not have an overall, comprehensive management approach that focuses specifically on the ship disposal program and on meeting the statutory deadline of 2006. In the absence of a comprehensive management approach, MARAD's ship disposal program lacks the vision needed to sustain a long-term effort. In addition, the program has not been able—and will likely continue to be unable—to obtain, on a consistent and predictable basis, the funding resources that it needs to efficiently and expeditiously reduce its obsolete ship inventory. Moreover, MARAD has not undertaken an overall assessment of its obsolete ship inventory, which is needed to determine what disposal methods (e.g., domestic or foreign scrapping, artificial reefing, deep-water sinking, or donations to organizations) are the most appropriate one for each vessel. It has also failed to set reasonable milestones for completing disposal and has not established relevant performance measures to periodically measure progress toward meeting the deadline. Similarly, MARAD has not established a formal decision-making framework that would clearly delineate roles and responsibilities and formalize program guidance and procedures. Further, MARAD has not established a process to systematically identify and assess the risk that external factors pose to the program, nor has it laid out plans that would prioritize its actions to mitigate these risks. In addition, MARAD has not submitted to Congress on a timely basis the semiannual progress reports that the 2001 statute requires. Finally, MARAD has predominately used a procurement method that is not appropriate for acquiring ship scrapping services and that has led to concerns about the lack of transparency in the way that ship scrapping contracts have been awarded. As a result of these many weaknesses, MARAD has not been able to ensure Congress that it can dispose of the obsolete ships in a timely and cost-effective manner.

Without an improved management approach, MARAD's ship disposal program will be limited in its ability to dispose of—in a timely manner—the more than 100 obsolete ships currently in its inventory, as well as the additional ships that the program expects to receive each year. As a result of its slow progress, MARAD will continue to have a backlog of obsolete and deteriorating ships that pose a threat to the coastal waterways where they are anchored because of the toxic materials that they contain. If this hazardous material should spill out, as it has already in a number of cases, the ships could cause a costly environmental disaster in some of the nation's sensitive waterways.

Recommendations for Executive Action

We recommend that the Secretary of Transportation direct the MARAD Administrator to take the following three actions.

- Develop a comprehensive approach to manage MARAD's ship disposal program that would
 - identify a strategy and an implementation plan to dispose of all existing obsolete ships and future transfers in a timely manner, maximizing the use of all available disposal methods;
 - determine the needed resources, the associated funding plan, and specific milestones for this disposal;
 - establish a framework for decision making that would delineate roles and responsibilities and establish guidance and procedures;
 - identify external factors that could impede program success and develop plans to mitigate them; and
 - annually evaluate results and implement corrective actions.
- Regularly communicate MARAD's plan, required resources, and any impediments that require congressional assistance in the mandated reports to Congress.

We also recommend that MARAD change its contracting approach for acquiring ship scrapping services from the use of PRDAs to an appropriate method.

Agency Comments and Our Evaluation

In commenting on a draft of this report, DOT did not directly state whether it agreed with our recommendations but noted that MARAD is taking some actions that may address them. DOT's comments stated that MARAD will provide an updated comprehensive, integrated approach to program management in subsequent reports to Congress and MARAD has terminated its usage of PRDAs. DOT's comments are included in appendix II of this report.

DOT stated that despite the complex challenges that MARAD's ship disposal program faces, through its efforts and actions, much has been achieved including the disposal of 26 vessels. DOT also commented that MARAD built a comprehensive disposal plan when the program was authorized and provided that plan to Congress in 2001, and also acknowledged that MARAD agrees that the time is right to ensure that its planning efforts are up to date and are appropriately comprehensive. However, MARAD does not believe that effective planning will change the fundamental external legal, environmental, and regulatory challenges that limit the number of ships that can be processed and the speed at which the program can proceed.

We recognize that the ship disposal program faces a number of complex challenges and that MARAD has taken a number of actions to address them. However, we do not believe that these actions have been taken in an integrated manner. That is why we continue to believe that a comprehensive management approach could better focus program efforts and lead to better program results. Specifically, we believe that the program could benefit from clearly stated goals, planned approaches consistent with these goals and with timetables, resource identification that could support these approaches in identifying, appropriate performance measures, and a process to systemically identify and assess the program's external factors and determine the related mitigation actions that could improve MARAD's chances of meeting its program goals. While MARAD developed a plan that contained some of these elements in 2001, the plan was not followed or revised. We believe that MARAD's acknowledgment that it needs to ensure that its planning efforts are up to date and comprehensive is a good first step. However, MARAD's comments do not provide enough detail for us to determine if these actions are sufficient.

DOT commented that MARAD has revised its contracting approach, which resulted in the termination of its use of PRDAs. It stated that MARAD had

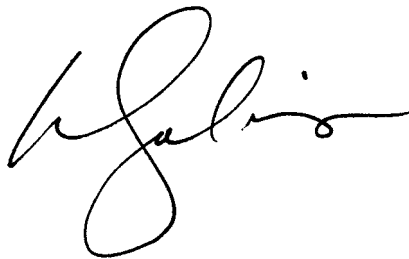
consistently provided fair treatment to contractors and that contract awards were made on the basis of best value to the government. We were not provided the details of MARAD's revised contracting approach and thus cannot comment on it.

DOT also provided technical comments, which were incorporated as appropriate.

We are sending copies of this report to Senators George Allen and John Warner; Representative Jo Ann Davis; the Secretary of Transportation; the Director, Office of Management and Budget; and other interested parties. We will also make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have questions regarding this report, please contact me at (202) 512-8365 or Solisw@gao.gov or Dave Schmitt, Assistant Director, at (757) 552-8124 or SchmittD@gao.gov. Other major contributors to this report were Rodell Anderson, Harry Jobes, Vijay Barnabas, Kenneth Patton, and Nancy Benco.

Sincerely yours,

A handwritten signature in black ink, appearing to read "W. Solis". The signature is fluid and cursive, with a large loop at the end.

William M. Solis
Director, Defense Capabilities and Management

Scope and Methodology

To assess whether the Maritime Administration (MARAD) is likely to meet the statutory deadline of September 2006 and, if not, what factors may prevent it from doing so, we reviewed MARAD's 2001 report to Congress, in which it presented its plan to meet the deadline, and its subsequent 2002 and 2004 status reports to Congress. We also reviewed the Department of Transportation's (DOT) and MARAD's strategic and performance plans and applicable laws and regulations pertaining to the ship disposal program. To assess the adequacy of these plans and reports for managing the ship disposal program, we compared the elements used in MARAD's ship disposal management approach with those developed from sound management principles as embodied in the Government Performance and Results Act (GPRA) of 1993 and further refined in GPRA user guides, our guide for leading practices in capital decision-making, and our prior reports. To measure progress that MARAD was making toward the 2006 deadline, we determined the number of awarded contracts, ships removed from the storage sites, and the number of ships disposed of by reviewing program documents. We also obtained data to reflect impediments that were impacting the program. During our review, MARAD officials in Washington provided us with briefings on the program's funding, fair market value of obsolete ships, domestic and foreign ship scrapping capacity, and ship scrapping performance bond cost determination. We reviewed and analyzed National Defense Reserve Fleet inventory reports for fiscal years 2000 to 2004 to determine the number of ships entering and leaving the inventory. We also reviewed reports that categorized the condition of ships in the inventory and assessed whether ships in the worse condition were given the highest priority for disposal. We also reviewed and analyzed funding data for the MARAD ship disposal program for fiscal years 2001 through 2004 to identify funding trends and examined a number of publications that had focused on ship disposal issues.¹

In addition to talking with MARAD officials in Washington, D.C., we met with MARAD representatives and conducted on site visits at the James River Reserve Fleet near Fort Eustis, Virginia, and the

¹ Interagency Panel, *Report of the Interagency Panel on Ship Scrapping*, April 1998 (the panel was chaired by the Office of the Deputy Under Secretary of Defense for Environmental Security with representatives from the Departments of State, Justice, Labor, and Transportation; the Navy, Defense Logistics Agency, and Environmental Protection Agency); GAO, *Federal Surplus Ships, Government Efforts to Address the Growing Backlog of Ships Awaiting Disposal*, [GAO/NSIAD-99-18](#) (Washington, D.C.: Oct. 22, 1998); Rand Corporation, *Disposal Options for Ships*, 2001; Commission of the European Communities, *Technological and Economic Feasibility Study of Ship Scrapping in Europe*, February 2001.

Suisun Bay Reserve Fleet, Benicia, California. During these visits, we talked with officials about their methodology for determining ship condition, discussed past instances of oil spills, and observed the condition of the ships by touring selected obsolete ships. We selected these two sites because they had the largest number of ships and included the ones considered to be of highest priority for disposal.

To gain the perspective of domestic scrapping companies, we conducted on-site visits at four domestic firms that had submitted proposals for scrapping ships and had been awarded scrapping contracts. These companies were Bay Bridge Enterprises LLC, Chesapeake, Virginia; and International Shipbreaking Limited, LLC, Marine Metals, Inc., and ESCO Marine, Inc., all of Brownsville, Texas. At each location, we met with company managers to obtain their views on MARAD's ship disposal program and also toured their facilities. We also interviewed officials at a fifth firm—All Star Metals, Brownsville—that we had identified as having the potential capacity to scrap MARAD ships.

To determine to what extent MARAD has used alternative disposal approaches, other than ship scrapping, to dispose of its inventory of obsolete ships, we interviewed officials in MARAD's Office of Ship Operations and Ship Disposal Program Office and obtained and reviewed MARAD's 2001 plan for ship disposal and MARAD's 2002 and 2004 reports to Congress on plan implementation. We reviewed a list of alternative approaches considered by MARAD and documented the priority that MARAD placed on each alternative and the trade-offs associated with each alternative in terms of costs, time, and barriers to implementation. In addition, we interviewed officials in the U.S. Naval Sea Systems Command program office responsible for managing the Navy's ship disposal program in Washington, D.C., to discuss their program.

To assess the appropriateness of MARAD's procurement methods for contracting for the disposal of surplus ships, we interviewed responsible MARAD headquarters officials in their ship disposal program office and their acquisition office, listened to briefings, and reviewed documents related to the acquisition process. We also compared MARAD's acquisition methods for ship disposal services with those used by the Navy. We submitted a series of written questions to MARAD to obtain the agency's legal position on the appropriateness of using Program Research and Development Announcements (PRDA) as an acquisition method for ship disposal. We reviewed MARAD's responses and reviewed the criteria in the Competition in Contracting Act of 1984 and the Federal Acquisition

Regulation. We also examined MARAD's contract files containing recent ship disposal industry proposals received in response to PRDAs and reviewed the criteria and process that MARAD used to evaluate industry proposals. We also reviewed the first six contracts that MARAD awarded under PRDA to determine if they were consistent with the Federal Acquisition Regulation. These contracts were awarded from August 2002 to February 2004.

To assess the impact of foreign competition on reducing the cost of ship disposal, we compared bid prices for solicitations that were restricted to domestic firms only versus those that included domestic and foreign firms. We also interviewed officials at MARAD and industry representatives at the five domestic ship scrapping firms mentioned previously to obtain their perspectives on factors contributing to lower ship scrapping costs. In addition, we visited the Institute of Scrap Recycling Industries, Washington, D.C., and obtained historical data on world prices for recycled steel.

We determined that the data used in this report were sufficiently reliable for the purposes of this report. We performed our audit from November 2003 through November 2004 in accordance with generally accepted government auditing standards.

Comments from the Department of Transportation

Note: GAO's comments supplementing those in the report's text appear at the end of this appendix.



**U.S. Department of
Transportation**
Office of the Secretary
of Transportation

Assistant Secretary
for Administration

400 Seventh Street, S.W.
Washington, D.C. 20590

February 15, 2005

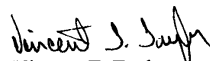
Mr. William M. Solis
Director, Defense Capabilities and Management
U.S. Government Accountability Office
441 G Street N.W.
Washington, D.C. 20548

Dear Mr. Solis:

Thank you for the opportunity to comment on the Government Accountability Office (GAO) draft report, "Maritime Administration: Improved Program Management Needed to Address Timely Disposal of Obsolete Ships." The Department's specific comments are provided in the enclosure with this letter.

We greatly appreciate the efforts expended by your staff in reviewing this program, and would be happy to provide any additional information or clarification that would be useful in this endeavor. Please contact Martin Gertel on 202-366-5145 if there are any questions, or if we may be of further assistance.

Sincerely,


Vincent T. Taylor

Enclosure

U.S. Department of Transportation
Comments Regarding Government Accountability Office (GAO)
Draft Report, "Maritime Administration: Improved Program Management Needed
to Address Timely Disposal of Obsolete Ships"

The Maritime Administration's (MARAD) obsolete ship disposal program faces complex challenges on many fronts including regulatory, legislative, resource, legal and industrial capacity issues. These issues frequently overlap and require significant effort and time to resolve. Despite these obstacles, much has been achieved. Since the start of FY 2001 a total of 48 vessels have been awarded for disposal, 37 vessels removed from MARAD fleets, and 26 vessels have been disposed. Due to its experienced staff and its comprehensive grasp of these issues, MARAD has made progress on every front, working together with the Congress and executive branch agencies. Legislative needs have been identified and some of the changes necessary for full access to all disposal alternatives enacted. Resources, to the extent available, have been effectively applied to identifying and resolving all disposal impediments. Counsel and technical experts continue to address the myriad of legal challenges that arise with nearly every vessel disposal method. Industry capacity has also been evaluated and addressed. Thanks in part to our efforts encouraging broader competition, the number of domestic vessel dismantling and recycling facilities has doubled over the last four years. Our accomplishments also include fulfilling a pledge by the Maritime Administrator to the Congress that all high priority ships available for disposal in the James River Reserve Fleet in Virginia, would be awarded for disposal in 2004.

While much progress has been achieved, the program faces serious continuing issues. Since 2001, MARAD has been pursuing a multifaceted approach to address these challenges and keep the program operating and improving. On the regulatory front, MARAD has been addressing the challenges involved in vessel dismantling and recycling and otherwise disposing of these vessels in an environmentally acceptable manner. This has required not only a concerted effort to conform to standards, but also to identify what those standards should be, and gain concurrence of environmental regulators on, for example, a single nationwide standard for preparing vessels to be used as artificial reefs. In addition, legal challenges are brought against individual vessel dismantling and recycling projects by groups concerned that these activities take place in an environmentally acceptable manner. In some cases, these legal challenges can add years to a single recycling effort as witnessed by an existing contract for recycling 15 ships at a qualified foreign facility that is on hold due to legal challenges. Some inconsistency in the level of resources available for vessel recycling efforts has at times also impacted our efforts. Finally, even with the increase in facilities, cost-effective, domestic capacity still does not rise to the level needed to meet the 2006 disposal mandate. Nevertheless, we continue to evaluate industry conditions, anticipate new issues, and implement effective workable solutions to existing issues.

See comment 1.

Set in this environment of complex, dynamic and often interwoven challenges, we do not agree with the GAO report's conclusion that the program has made slow progress "primarily" because of the program's planning. Rather, we maintain that the combination of external factors facing the program is the primary source of delay. MARAD has done extensive planning for this program. While MARAD agrees the time is right to ensure that its planning efforts are up to date and appropriately comprehensive, even the most effective planning will not directly change the fundamental external challenges that limit the number of ships that can be processed and the speed at which we can proceed.

Disposal Program Faces Formidable Challenges

The Federal program for disposing of obsolete merchant marine vessels faces a number of obstacles that significantly impact this program. Among the most significant are: restrictions on export, domestic capacity limitations, legal challenges, and issues affecting the use of alternative disposal methods. MARAD's recognition of the impact of these factors led it to inform the Congress, as early as June 2002, that it was unlikely to be able to meet the September 2006 disposal deadline. The GAO draft report, and the conclusion it reaches, would benefit from expanded consideration of these factors and the relative impact they have had on the ship disposal program.

Restrictions on Vessel Export for Recycling – Export offers significant potential for increasing disposal capacity in a cost-effective, environmentally sound and expeditious manner; however, environmental regulatory impediments to vessel export continue to preclude utilization of this alternative. As detailed in reports required by Congress, MARAD, under existing regulation, is effectively prevented from exporting ships for dismantling and recycling. Due to the statutory constraints contained in the Toxic Substances Control Act (TSCA), foreign disposal of obsolete vessels is not a commercially viable option. This is primarily due to the TSCA prohibition on exporting polychlorinated biphenyls (PCBs). If the foreign export hurdles could be cleared, MARAD would be in a position to consider existing proposals that could significantly reduce the number of obsolete vessels awaiting disposal.

Domestic Capacity Limitations – In light of the export limitation, and continuing challenges associated with alternative disposal methods, the rate of disposal is highly dependent on the availability of cost-effective domestic facilities. Industrial capacity, in terms of annual ship disposal rates, is difficult to quantify because of several factors, including variation in vessel condition and the scope of hazardous material remediation that would be needed. However, due to capacity and resource limitations, the six domestic facilities that have been awarded contracts over the past few years, have demonstrated a potential cost-effective capability to dismantle and recycle up to 15 to 20 vessels per year. Further, even at award rates that are lower than the 15-20 ship potential, the limitations of many domestic facilities often result in significant delays of four to five months after contract award before the facility takes possession of the vessels and dismantling commences. It is also not uncommon for domestic facilities to request significant extensions for completing the work. Over the past year, domestic

See comment 2.

See comment 3.

facilities with the exception of two, have had significant production throughput problems, which significantly delayed completion of recycling projects awarded by MARAD.

Legal Challenges – MARAD adheres to the statutory mandate of selecting qualified facilities for ship disposal based on best value to the Government and “without any predisposition toward foreign or domestic facilities.” Unfortunately, MARAD’s disposal efforts to foreign facilities have been impeded by legal challenges from third parties both in the U.S and abroad. The domestic lawsuits challenge compliance with environmental laws, including TSCA. Foreign legal challenges question compliance with regulatory and administrative processes. These challenges tie up resources that could be used for ship disposal activities and have indefinitely delayed the disposal of 15 ships under contract for foreign recycling.

See comment 4.

Alternative Disposal Challenges – While MARAD is vigorously pursuing alternative disposal options, substantial challenges currently limit the use of these methods. First, MARAD continues to work with Federal environmental regulators to come up with a consistent set of Federal standards for preparing vessels for reefing. In addition, MARAD’s work with coastal states is at a competitive disadvantage with the military as a result of recent changes in the Navy’s vessel disposal program. In order to be on equal footing with the Navy’s reefing program and to increase demand from coastal states for MARAD ships to be used as reefs, MARAD is currently pursuing additional legislative changes to its artificial reefing authority.

MARAD Uses a Comprehensive Approach to Ship Disposal

MARAD built a comprehensive ship disposal plan when the program was authorized, and provided that plan to the Congress in 2001. MARAD’s strategy and plans for the vessel dismantling and recycling program have to be flexible to contend with the dynamic nature of the industry and the impediments. MARAD’s strategy is to identify the most expedient and cost-effective option for disposal of each ship in its inventory consistent with sound environmental practices. It emphasizes disposing of those ships in the worst condition first, while maintaining the flexibility necessary to respond to market conditions and opportunities. MARAD’s approach is well understood throughout the agency, and has been fully disclosed to the Congress through various means since the program’s inception in 2001. MARAD will continue its planning efforts and make certain that plans are up to date and as comprehensive as possible. MARAD will provide an updated vision of its comprehensive, integrated approach to program management in subsequent reports to Congress.

See comment 5.

MARAD Revised Its Contracting Approach

Use of the Program Research and Development Acquisition (PRDA) method was terminated in 2004. However, it is important to note that MARAD consistently provided for fair treatment of contractors, and awards were made on the basis of best value to the government. Additionally, MARAD was careful to provide all contractors with

**Appendix II
Comments from the Department of
Transportation**

extensive information about the process, and how it worked, and selected disposal facilities based on careful evaluation to ensure that they were fully qualified.

Conclusion

MARAD is using all available means to dispose of the obsolete merchant marine ships in its National Defense Reserve Fleet in an environmentally acceptable, cost-effective and expeditious manner. MARAD has assessed the obsolete ships in its inventory and understands their condition, and their readiness for towing. It also understands the ship disposal industry, including domestic capacity, its limitations, and the role that foreign capacity can play in addressing existing limitations. Finally, as described above, the primary factors affecting the pace of ship disposal progress are the limited availability of cost-effective domestic capacity, current unavailability of foreign disposal contractors, and the third party legal challenges that frequently delay disposal efforts.

GAO's Comments

The following are GAO's comments on the Department of Transportation's letter dated February 15, 2005.

1. We do not agree that MARAD has made substantial progress since 2001, considering less than 12 percent of the ships that have been in its inventory had been disposed of through September 2004—4 years later. While MARAD has made more progress in disposing of ships in the past 2 years, much of this progress can be attributed to Congress providing about \$25 million more than was sought in the fiscal years 2003 and 2004 budget requests and the rising scrap metal market that has kept contract prices low. We also do not agree that the number of ships awarded is a good measurement of program progress since contract award has not always led to ships being removed and disposed of.
2. MARAD has no way of determining how successful exporting ships could be in reducing the number of its ships because it has not systematically identified and assessed potential impediments to export and determined actions to mitigate them.
3. As our report points out, while DOT states that domestic capacity is limited, our report notes that MARAD has not done an analysis to determine the potential domestic capacity nor thought such an analysis was necessary. The recent increase in the number of domestic firms being awarded contracts would indicate that MARAD underestimated domestic capacity in the past.
4. We believe that MARAD lacks an integrated strategy for disposing of all of its ships using its available disposal methods. Lacking such a strategy contributed to MARAD's decision to award an export contract that included 10 of its worst-conditioned ships before the advisability and feasibility of exporting was demonstrated. As a result, almost half of the \$31 million that Congress appropriated in fiscal year 2003 has been tied up, pending the resolution of issues related to the exporting of these ships, and the disposal of these 10 deteriorated ships has been delayed.

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5. We agree that plans must be flexible. However, successful programs must have a road map to guide its efforts. While DOT states that its strategy emphasizes disposing of ships in the worst condition first, neither its reports to Congress nor its strategic planning documents have identified the amount of funding needed to accomplish this strategy based on its available disposable methods nor given a timetable for accomplishing these disposal actions.

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