



Testimony

Before the Committee on Armed  
Services, U.S. Senate

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# NAVY READINESS

## Actions Needed to Address Persistent Maintenance, Training, and Other Challenges Affecting the Fleet

Statement of John H. Pendleton, Director,  
Defense Capabilities and Management

# GAO Highlights

Highlights of [GAO-17-809T](#), a testimony before the Committee on Armed Services, U.S. Senate

## Why GAO Did This Study

Since January 2017, the Navy has suffered four significant mishaps at sea that resulted in serious damage to its ships and the loss of 17 sailors. Three of these incidents involved ships homeported in Japan. In response to these incidents, the Chief of Naval Operations ordered an operational pause for all fleets worldwide, and the Vice Chief of Naval Operations directed a comprehensive review of surface fleet operations, stating that these tragic incidents are not limited occurrences but part of a disturbing trend in mishaps involving U.S. ships.

This statement provides information on the effects of homeporting ships overseas, reducing crew size on ships, and not completing maintenance on time on the readiness of the Navy and summarizes GAO recommendations to address the Navy's maintenance, training, and other challenges.

In preparing this statement, GAO relied on work it has published since 2015 related to the readiness of ships homeported overseas, sailor training and workload issues, maintenance challenges, and other issues. GAO updated this information, as appropriate, based on Navy data.

## What GAO Recommends

GAO made 14 recommendations in prior work cited in this statement. The Department of Defense generally concurred with all of them but has implemented only 1. Continued attention is needed to ensure that these recommendations are addressed, such as the Navy assessing the risks associated with overseas basing and reassessing sailor workload and factors used in its manpower requirements process.

View [GAO-17-809T](#). For more information, contact John Pendleton at (202) 512-3489 or [pendletonj@gao.gov](mailto:pendletonj@gao.gov).

September 19, 2017

## NAVY READINESS

### Actions Needed to Address Persistent Maintenance, Training, and Other Challenges Affecting the Fleet

## What GAO Found

GAO's prior work shows that the Navy has increased deployment lengths, shortened training periods, and reduced or deferred maintenance to meet high operational demands, which has resulted in declining ship conditions and a worsening trend in overall readiness. The Navy has stated that high demand for presence has put pressure on a fleet that is stretched thin across the globe. Some of the concerns that GAO has highlighted include:

- **Degraded readiness of ships homeported overseas:** Since 2006, the Navy has doubled the number of ships based overseas. Overseas basing provides additional forward presence and rapid crisis response, but GAO found in May 2015 that there were no dedicated training periods built into the operational schedules of the cruisers and destroyers based in Japan. As a result, the crews of these ships did not have all of their needed training and certifications. Based on updated data, GAO found that, as of June 2017, 37 percent of the warfare certifications for cruiser and destroyer crews based in Japan—including certifications for seamanship—had expired. This represents more than a fivefold increase in the percentage of expired warfare certifications for these ships since GAO's May 2015 report. The Navy has made plans to revise operational schedules to provide dedicated training time for overseas-based ships, but this schedule has not yet been implemented.
- **Crew size reductions contribute to sailor overwork and safety risks:** GAO found in May 2017 that reductions to crew sizes the Navy made in the early 2000s were not analytically supported and may now be creating safety risks. The Navy has reversed some of those changes but continues to use a workweek standard that does not reflect the actual time sailors spend working and does not account for in-port workload—both of which have contributed to some sailors working over 100 hours a week.
- **Inability to complete maintenance on time:** Navy recovery from persistently low readiness levels is premised on adherence to maintenance schedules. However, in May 2016, GAO found that the Navy was having difficulty completing maintenance on time. Based on updated data, GAO found that, in fiscal years 2011 through 2016, maintenance overruns on 107 of 169 surface ships (63 percent) resulted in 6,603 lost operational days (i.e., the ships were not available for training and operations).

Looking to the future, the Navy wants to grow its fleet by as much as 30 percent but continues to face challenges with manning, training, and maintaining its existing fleet. These readiness problems need to be addressed and will require the Navy to implement GAO's recommendations—particularly in the areas of assessing the risks associated with overseas basing, reassessing sailor workload and the factors used to size ship crews, managing investments to modernize and improve the efficiency of the naval shipyards, and applying sound planning and sustained management attention to its readiness rebuilding efforts. In addition, continued congressional oversight will be needed to ensure that the Navy demonstrates progress in addressing its maintenance, training, and other challenges.

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Chairman McCain, Ranking Member Reed, and Members of the Committee:

Thank you for the opportunity to be here today to discuss issues related to Navy readiness in the wake of four significant mishaps at sea thus far in 2017. The most recent of these occurred in August when an *Arleigh Burke* class destroyer—the USS *John S. McCain* (DDG 56)—collided with an oil tanker while underway near Singapore. This collision resulted in serious damage to the ship, the loss of 10 sailors, and injury to five more. It was the second collision involving the loss of life for Navy ships underway in the last three months and the fourth significant at sea mishap in the past year.<sup>1</sup> In response to these incidents, the Chief of Naval Operations ordered an operational pause for all fleets worldwide, and the Vice Chief of Naval Operations directed a comprehensive review of surface fleet operations, stating that these tragic incidents are not limited occurrences but part of a disturbing trend of mishaps involving U.S. warships.<sup>2</sup>

While we await the Navy's official findings on this matter, you asked us to testify today on findings from our recent Navy readiness reviews. Before we begin, however, it is important to set the context for the challenges the Navy faces. In June 2017, we issued a report highlighting five key mission challenges facing the Department of Defense (DOD).<sup>3</sup> In that report, we noted that the United States faces an extremely challenging national security environment at the same time that it is grappling with addressing an unsustainable fiscal situation in which DOD accounts for approximately half of the federal government's discretionary spending. Within this environment, DOD is working to both rebuild the readiness of its forces and modernize to meet future threats while facing constrained

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<sup>1</sup>Significant mishaps include collisions with other ships and groundings. We provide information on the other three at sea mishaps of 2017 in the background section of this testimony.

<sup>2</sup>On August 24, 2017, the Vice Chief of Naval Operations directed the Commander, U.S. Fleet Forces Command, to lead a comprehensive review of surface fleet operations and incidents at sea that have occurred over the past decade with final results to be provided within 60 days, unless an extension is requested and granted.

<sup>3</sup>This included a detailed discussion of our priority recommendations to DOD. Since August 2015, we have identified priority recommendations in letters to the Secretary of Defense—recommendations that we have made to DOD that we believe the department should give a high priority to addressing. See GAO, *Department of Defense: Actions Needed to Address Five Key Mission Challenges*, [GAO-17-369](#) (Washington, D.C.: June 13, 2017). As of June 2017, 78 priority recommendations remained open.

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budgets. Each of the military services today are generally smaller and less combat ready than they have been in many years, and each military service has been forced to cut critical needs in areas such as training, maintenance, and modernization due to budgetary constraints. Put simply, our work has shown that readiness challenges persist across a number of areas including, but not limited to, the Navy.

This statement provides information on Navy readiness, including the effects of homeporting ships overseas, reducing crew size on ships, and not completing maintenance on time, and summarizes GAO recommendations to address the Navy's challenges.<sup>4</sup> We provided a similar statement on September 7, 2017 before two subcommittees of the House Armed Services Committee.<sup>5</sup> This statement is updated to include recently-issued work on Navy shipyards and is based on our body of work issued between 2015 and 2017 examining the readiness of ships homeported overseas, sailor training and workload issues, maintenance challenges, and other readiness issues.<sup>6</sup> To perform our prior work, we analyzed Navy readiness, training, and maintenance data, and interviewed cognizant Navy officials involved in fleet operations. The reports cited throughout this statement contain more details on the scope of the work and the methodology used to carry it out. This statement also includes updates to information as of August 2017, as appropriate, based on Navy documentation and discussions with Navy officials.

The work on which this testimony is based was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Background

Since January 2017, the Navy has suffered four significant mishaps at sea that have resulted in serious damage to Navy ships and the loss of

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<sup>4</sup>The status of our recommendations made in the work cited in this statement is provided in appendix I.

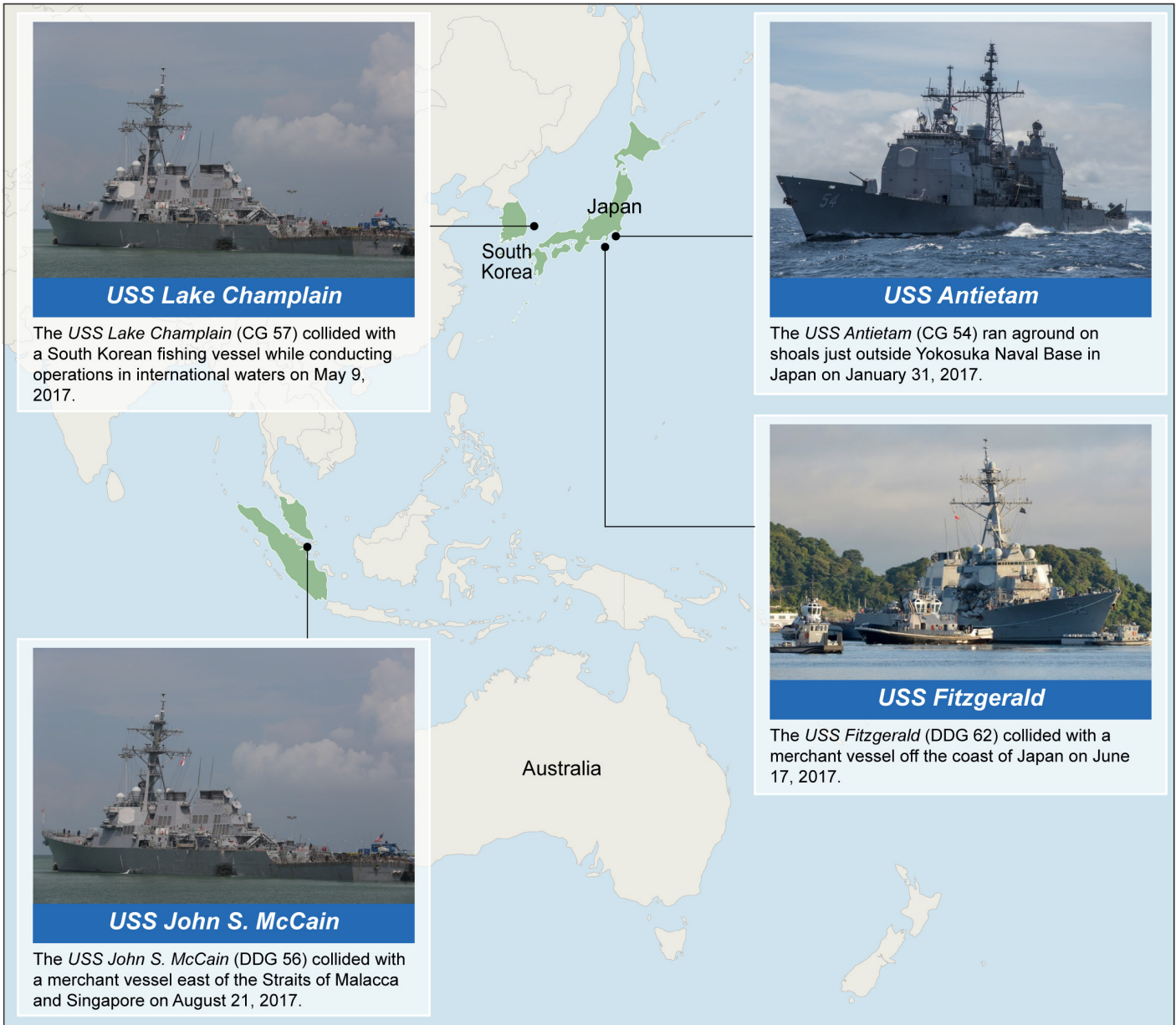
<sup>5</sup>GAO, *Navy Readiness: Actions Needed to Address Persistent Maintenance, Training, and Other Challenges Facing the Fleet*, [GAO-17-798T](#) (Washington, D.C.: Sept. 7, 2017).

<sup>6</sup>A list of related classified and unclassified GAO products is provided in appendix III.

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17 sailors (see figure 1). Three of the four at sea mishaps that have occurred—two collisions and one grounding—have involved ships homeported overseas in Yokosuka, Japan. Appendix II provides a summary of major mishaps for Navy ships at sea in fiscal years 2009 through 2017.

**Figure 1: Overview of Significant Mishaps at Sea for Navy Ships, January – August 2017**



Source: GAO analysis of Navy data; Defense Video Imagery Distribution System and U.S. Navy (images). | GAO-17-809T

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The Navy currently has 277 ships, a 17 percent reduction from the 333 ships it had in 1998. Over the past two decades, as the number of Navy ships has decreased, the number of ships deployed overseas has remained roughly constant at about 100 ships; consequently, each ship is being deployed more to maintain the same level of presence.<sup>7</sup> We reported in September 2016 that the Navy, along with the other military services, had been reporting persistently low readiness levels.<sup>8</sup> The Navy attributes these, in part, to the increased deployment lengths needed to meet the continuing high demand for its aircraft carriers, cruisers, destroyers, and amphibious ships. For example, the deployment lengths for carrier strike groups had increased from an average of 6.4 months during the period of 2008 through 2011 to a less sustainable 9 months for three carrier strike groups that were deployed in 2015. In 2016, the Navy extended the deployments of the *Harry S Truman* and *Theodore Roosevelt* Carrier Strike Groups to 8 and 8.5 months, respectively. In addition, the Navy has had to shorten, eliminate, or defer training and maintenance periods to support these high deployment rates. These decisions have resulted in declining ship conditions across the fleet and have increased the amount of time required for the shipyards to complete maintenance on these ships.<sup>9</sup> Lengthened maintenance periods, in turn, compress the time that ships are available for training and operations.

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<sup>7</sup>Center for Strategic and Budgetary Assessments, *Deploying Beyond Their Means: America's Navy and Marine Corps at a Tipping Point* (Nov. 18, 2015).

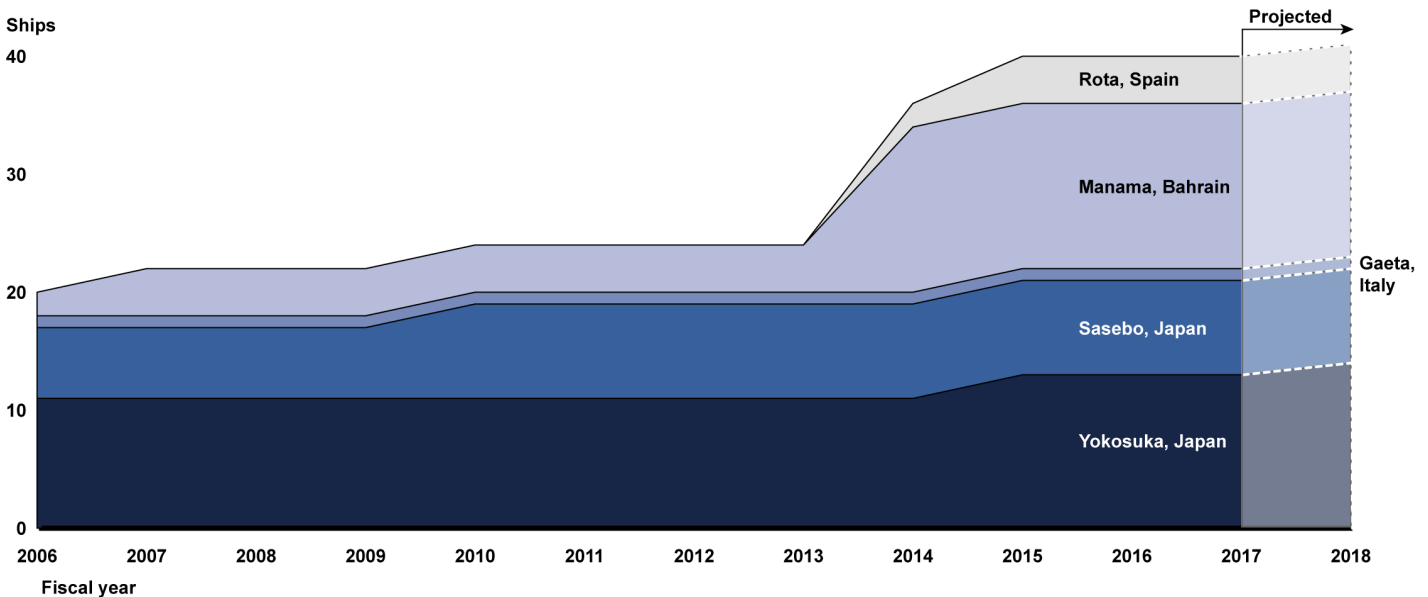
<sup>8</sup>GAO, *Military Readiness: DOD's Readiness Rebuilding Efforts May Be at Risk without a Comprehensive Plan*, [GAO-16-841](#) (Washington, D.C.: Sept. 7, 2016).

<sup>9</sup>*The State of the Military: Hearing Before the H. Comm. on Armed Services*, 115th Cong. (2017) (statement of Admiral William F. Moran, U.S. Navy, Vice Chief of Naval Operations).

## Ships Homeported Overseas Provide Increased Forward Presence but Train Less, Defer More Maintenance, Degrade Faster, and Cost More to Operate

As we previously reported, to help meet the operational demands using its existing inventory of ships, the Navy has assigned more of its surface combatants and amphibious ships to overseas homeports. Since 2006, the Navy has doubled the percentage of the fleet assigned to overseas homeports. In 2006, 20 ships were homeported overseas (7 percent of the fleet); today, 40 ships are homeported overseas (14 percent of the fleet) in Japan, Spain, Bahrain, and Italy; and an additional destroyer will be homeported in Yokosuka, Japan in 2018 (see figure 2).

**Figure 2: Navy Ships Homeported Overseas in Fiscal Years 2006 – 2018 by Location**



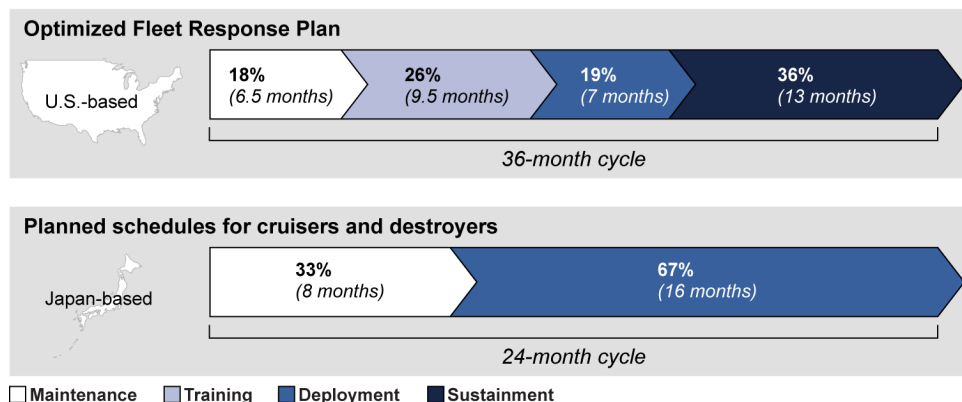
Source: GAO analysis of Navy data. | GAO-17-809T

According to the Navy, homeporting ships overseas is an efficient method for providing forward presence and rapid crisis response. Our prior work confirms that having ships homeported overseas provides additional presence, but it comes at a cost. For example, we found in May 2015 that



homeporting ships overseas results in higher operations and support costs than homeporting ships in the United States.<sup>10</sup> In addition, the operational schedules the Navy uses for overseas-homeported ships limit dedicated training and maintenance periods, resulting in difficulty keeping crews fully trained and ships maintained. In fact, the primary reason that Navy ships homeported overseas provide more deployed time than ships homeported in the United States is that the Navy reduces their training and maintenance periods in order to maximize their operational availability. Ships homeported overseas do not operate within the traditional fleet response plan cycles that apply to U.S.-based ships. Since the ships are in permanent deployment status during their time homeported overseas, they do not have designated ramp-up and ramp-down maintenance and training periods built into their operational schedules (see figure 3). Navy officials told us that because the Navy expects these ships to be operationally available for the maximum amount of time, their intermediate and depot-level maintenance are executed through more frequent, shorter maintenance periods or deferred until after they return to a U.S. homeport—generally after 7 to 10 years overseas.

**Figure 3: Percentage of Time Navy Allocates to Training, Maintenance, and Deployment in Planned Schedules for Cruisers and Destroyers Homeported in the United States and in Japan**



Source: GAO analysis of Navy data. | GAO-17-809T

Notes: Percentages do not add up to 100 due to rounding. Planned schedules are subject to change to meet operational requirements and have varied over time according to Navy officials.

<sup>10</sup>GAO, *Navy Force Structure: Sustainable Plan and Comprehensive Assessment Needed to Mitigate Long-Term Risks to Ships Assigned to Overseas Homeports*, [GAO-15-329](#) (Washington, D.C.: May 29, 2015).

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In May 2015, we also found that high operational tempo for ships homeported overseas limits the time for crew training when compared with training time for ships homeported in the United States. Navy officials told us that U.S.-based crews are completely qualified and certified prior to deploying from their U.S. homeports, with few exceptions. In contrast, the high operational tempo of ships homeported overseas had resulted in what Navy personnel called a “train on the margins” approach, a shorthand way to say there was no dedicated training time set aside for the ships so crews trained while underway or in the limited time between underway periods. We found that, at the time of our 2015 review, there were no dedicated training periods built into the operational schedules of the cruisers, destroyers, and amphibious ships homeported in Yokosuka and Sasebo, Japan. As a result, these crews did not have all of their needed training and certifications. We recommended that the Navy develop and implement a sustainable operational schedule for all ships homeported overseas. DOD concurred with this recommendation and reported in 2015 that it had developed revised operational schedules for all ships homeported overseas. However, when we contacted DOD to obtain updated information in August 2017, U.S. Pacific Fleet officials stated that the revised operational schedules for the cruisers and destroyers homeported in Japan were still under review and had not been employed. As of June 2017, 37 percent of the warfare certifications for cruiser and destroyer crews homeported in Japan had expired, and over two-thirds of the expired certifications—including mobility-seamanship and air warfare—had been expired for 5 months or more. This represents more than a fivefold increase in the percentage of expired warfare certifications for these ships since our May 2015 report.<sup>11</sup> The Navy’s *Surface Force Readiness Manual* states that the high operational tempo and frequent tasking of ships homeported overseas requires that these ships always be prepared to execute complex operations and notes that this demand for continuous readiness also means that ships homeported overseas should maintain maximum training, material condition, and manning readiness.<sup>12</sup>

With respect to the material condition of the ships, we found in May 2015 that casualty reports—incidents of degraded or out-of-service

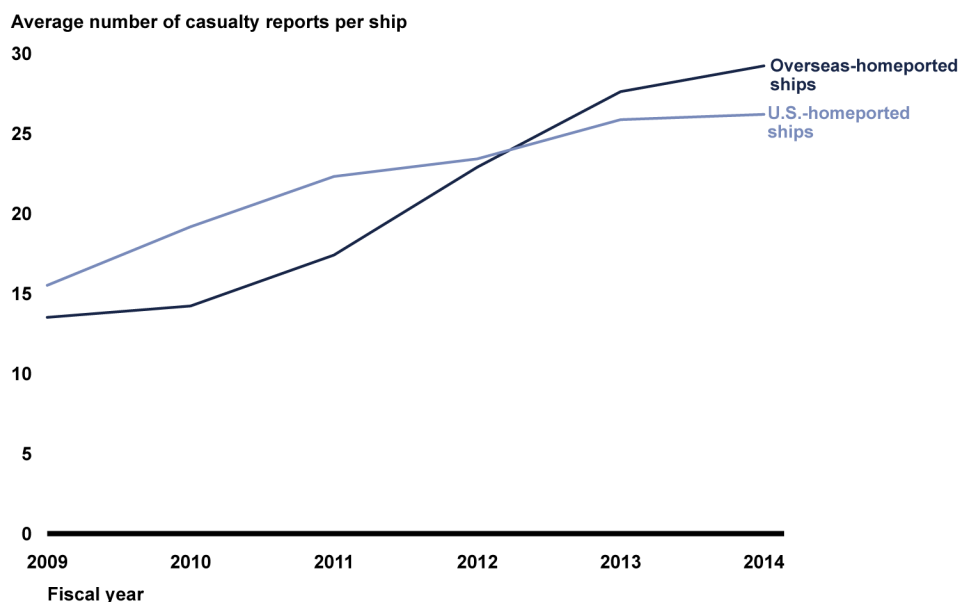
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<sup>11</sup>As of January 2015, 7 percent of the warfare certifications for cruiser and destroyer crews homeported in Japan had expired. In updating data for this testimony, the level of expired warfare certifications had risen to 37 percent for these crews as of June 2017.

<sup>12</sup>Commander, Naval Surface Force, U.S. Pacific Fleet/Commander, Naval Surface Force Atlantic Instruction 3502.3A, *Surface Force Readiness Manual* (Nov. 8, 2016).

equipment—nearly doubled over the 2009 through 2014 time frame, and the condition of overseas-homeported ships decreased even faster than that of U.S.-based ships (see figure 4). The Navy uses casualty reports to provide information on the material condition of ships in order to determine current readiness. For example, casualty report data provide information on equipment or systems that are degraded or out of service, the lack of which will affect a ship’s ability to support required mission areas. In 2015, Navy officials acknowledged an increasing number of casualty reports on Navy ships and a worsening trend in material ship condition. They stated that equipment casualties require unscheduled maintenance and have a negative effect on fleet operations, because there is an associated capability or capacity loss.

**Figure 4: Average Daily Casualty Reports for U.S.- and Overseas-Homeported Ships, January 2009 – July 2014**



Source: GAO analysis of Navy data. | GAO-17-809T

In our May 2015 report, we recommended that the Navy develop a comprehensive assessment of the long-term costs and risks to its fleet associated with the Navy’s increasing reliance on overseas homeporting to meet presence requirements; make any necessary adjustments to its overseas presence based on this assessment; and reassess these risks when making future overseas homeporting decisions. DOD concurred with this recommendation, but, as of August 2017, it has not conducted

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an assessment, even though it has continued to increase the number of ships homeported overseas.

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## Size and Composition of Ship Crews May Contribute to Sailor Overwork and Create Readiness and Safety Risks

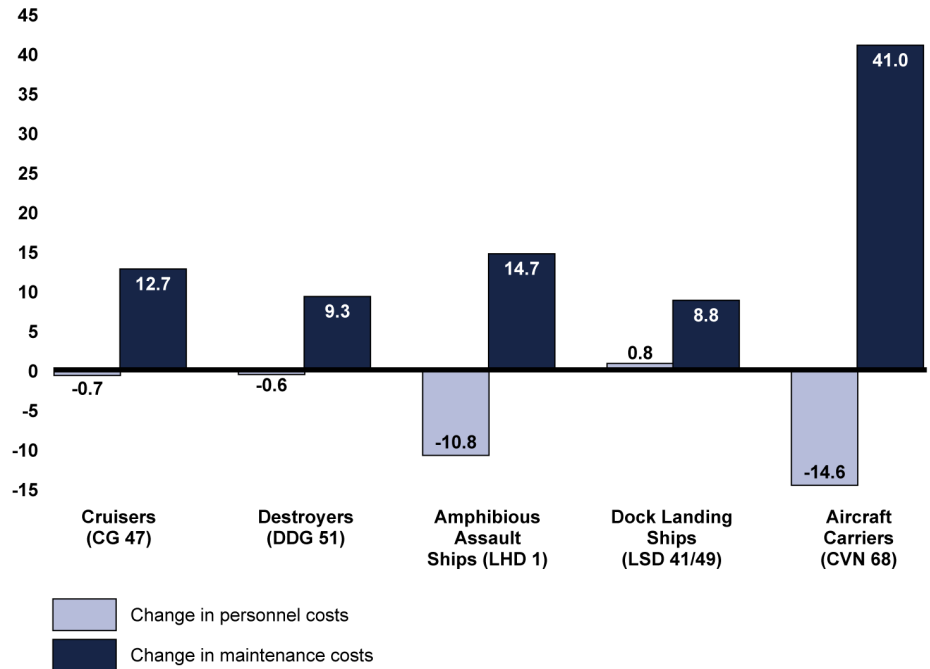
In the early 2000s, the Navy made several changes to its process for determining the size and composition of ship crews that may contribute to sailor overwork and create readiness and safety risks. These changes were intended to drive down crew sizes in order to save on personnel costs. However, as we reported in May 2017, these changes were not substantiated with analysis and may be creating readiness and safety risks.<sup>13</sup> With fewer sailors operating and maintaining surface ships, the material condition of the ships declined, and we found that this decline ultimately contributed to an increase in operating and support costs that outweighed any savings on personnel (see figure 5). The Navy eventually reassessed and reversed some of the changes it had made during this period—known as “optimal manning”—but it continued to use a workweek standard that does not reflect the actual time sailors spend working and does not account for in-port workload—both of which may be leading to sailors being overworked. Additionally, we found that heavy workload does not end after ships return to port. Crews typically operate with fewer sailors while in port, so those crew members remaining must cover the workload of multiple sailors, causing additional strain and potential overwork.

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<sup>13</sup>GAO, *Navy Force Structure: Actions Needed to Ensure Proper Size and Composition of Ship Crews*, [GAO-17-413](#) (Washington, D.C.: May 18, 2017).

**Figure 5: Changes in Average Annual per Ship Personnel and Maintenance Costs from Start of Optimal Manning through Fiscal Year 2015**

Millions of constant fiscal year 2015 dollars

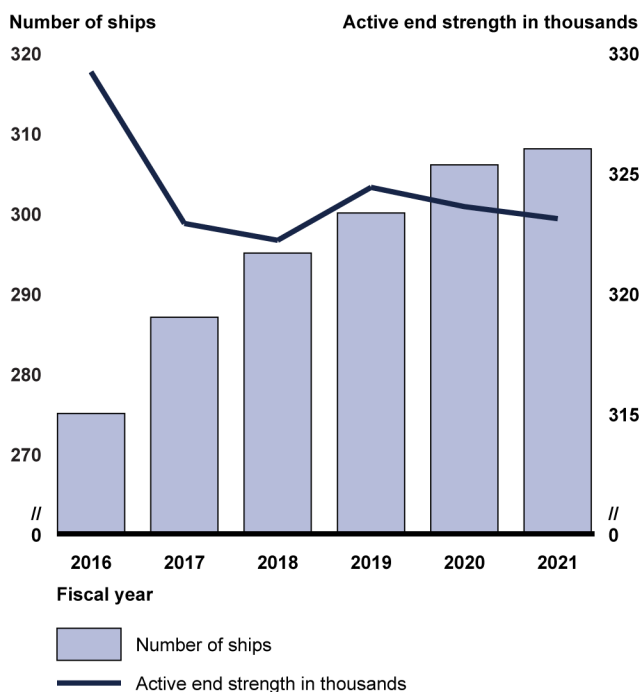


Source: GAO analysis of Navy data. | GAO-17-809T

In 2014, the Navy conducted a study of the standard workweek and identified significant issues that could negatively affect a crew’s capabilities to accomplish tasks and maintain the material readiness of ships, as well as crew safety issues that might result if crews slept less to accommodate workload that was not accounted for. The Navy study found that sailors were on duty 108 hours a week, exceeding their weekly on-duty allocation of 81 hours. This on-duty time included 90 hours of productive work—20 hours per week more than the 70 hours that are allotted in the standard workweek. This, in turn, reduced the time available for rest and resulted in sailors spending less time sleeping than was allotted, a situation that the study noted could encourage a poor safety culture. Moving forward, the Navy will likely face manning challenges, especially given its current difficulty in filling authorized positions, as it seeks to increase the size of its fleet by as much as 30 percent over its current size. Navy officials stated that even with manpower requirements that accurately capture all workload, the Navy will be challenged to fund these positions and fill them with adequately

trained sailors at current personnel levels. Figure 6 shows the Navy's projected end strength and fleet size.

**Figure 6: Planned Number of Navy Ships and Projected Personnel End Strength**



Source: GAO analysis of Navy data. | GAO-17-809T

Note: Number of ships from 2017 to 2021 is based on the 308-ship fleet size in the Navy's Fiscal Year 2017 shipbuilding plan. The Navy has not yet updated its shipbuilding plan to reflect its new goal of 355 ships. Projected personnel end strength is the total number of active-duty personnel in the Navy.

In our May 2017 report, we found that the Navy's guidance does not require that the factors it uses to calculate manpower requirements be reassessed periodically or when conditions change, to ensure that these factors remain valid and that crews are appropriately sized. We made several recommendations to address this issue, including that the Navy should (1) reassess the standard workweek, (2) require examination of in-port workload, (3) develop criteria to reassess the factors used in its manpower requirements process, and (4) update its ship manpower requirements. DOD concurred with our recommendations, stating that it is committed to ensuring that the Navy's manpower requirements are current and analytically based and will meet the needs of the existing and future surface fleet. As of August 2017, DOD had not yet taken any

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actions to implement these recommendations. We believe that, until the Navy makes the needed changes, its ships may not have the right number and skill mix of sailors to maintain readiness and prevent overworking its sailors.

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## The Navy's Inability to Complete Ship Maintenance on Time Hampers Its Efforts to Rebuild Readiness

To address its persistently low readiness levels, the Navy began implementing a revised operational schedule in November 2014, which it referred to as the optimized fleet response plan. This plan seeks to maximize the employability of the existing fleet while preserving adequate time for maintenance and training, providing continuity in ship leadership and carrier strike group assignments, and restoring operational and personnel tempos to acceptable levels. The Navy's implementation of the optimized fleet response plan—and readiness recovery more broadly—is premised on adherence to deployment, training, and maintenance schedules.

However, in May 2016, we found that the Navy was having difficulty in implementing its new schedule as intended.<sup>14</sup> Both the public and private shipyards were having difficulty completing maintenance on time, owing primarily to the poor condition of the ships after more than a decade of heavy use, deferred maintenance, and the Navy's inability to accurately predict how much maintenance they would need.<sup>15</sup> We reported that in 2011 through 2014 only 28 percent of scheduled maintenance for surface combatants was completed on time and just 11 percent was completed on time for aircraft carriers. We updated these data as of August 2017 to include maintenance availabilities completed through the end of fiscal year 2016 and found continued difficulty completing maintenance on time for key portions of the Navy fleet (see figure 7):

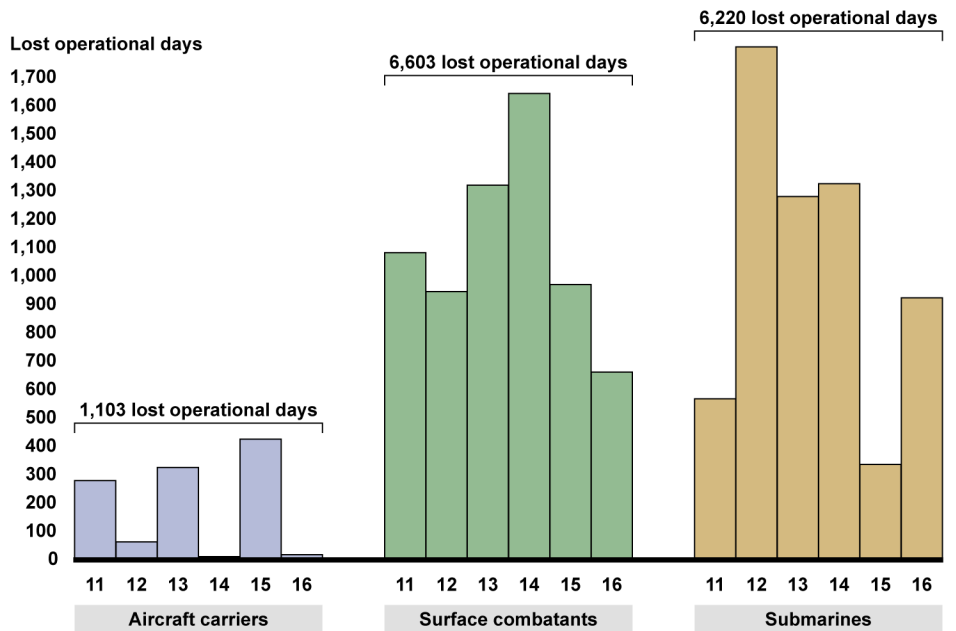
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<sup>14</sup>GAO, *Military Readiness: Progress and Challenges in Implementing the Navy's Optimized Fleet Response Plan*, [GAO-16-466R](#) (Washington, D.C.: May 2, 2016).

<sup>15</sup>The Navy generally contracts with private shipyards and other firms for the repair, maintenance, and modernization of non-nuclear surface ships. Although the Navy operates several government-owned shipyards, those shipyards are used primarily to support the repair, maintenance, and modernization of nuclear-powered ships, such as submarines and aircraft carriers.

- *Aircraft Carriers (CVNs)*: In fiscal years 2011 through 2016, maintenance overruns on 18 of 21 (86 percent) aircraft carriers resulted in a total of 1,103 lost operational days—days that ships were not available for operations—the equivalent of losing the use of 0.5 aircraft carriers each year.<sup>16</sup>
- *Surface Combatants (DDGs and CGs)*: In fiscal years 2011 through 2016, maintenance overruns on 107 of 169 (63 percent) surface combatants resulted in a total of 6,603 lost operational days—the equivalent of losing the use of 3.0 surface combatants each year.
- *Submarines (SSNs, SSBNs, and SSGNs)*: In fiscal years 2011 through 2016, maintenance overruns on 39 of 47 (83 percent) submarines resulted in a total of 6,220 lost operational days—the equivalent of losing the use of 2.8 submarines each year.

**Figure 7: Aircraft Carrier, Surface Combatant, and Submarine Lost Operational Days Resulting from Maintenance Overruns, Fiscal Years 2011 – 2016**



Source: GAO analysis of Navy data. | GAO-17-809T

<sup>16</sup>This does not necessarily mean that the Navy is missing presence in a given area, because the Navy has other options to mitigate maintenance delays—such as extending another ship’s deployment.



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Note: The Navy tracks maintenance availabilities by the fiscal year in which they begin. Figure data showing lost operational days for aircraft carriers and submarines are as of March 2017; and for surface combatants, as of July 2017. Data on the number of lost operational days for fiscal year 2016 for aircraft carriers and fiscal years 2014 through 2016 for submarines are incomplete, because there were still maintenance availabilities being executed as of March 2017. Total lost operational days will not be known until all aircraft carriers and submarines that started a maintenance availability complete that availability.

Navy officials are aware of the challenges faced by both the public and private shipyards and have taken steps to address the risks these pose to maintenance schedules, including hiring additional shipyard workers and improving their maintenance planning processes. However, Navy officials have told us that it will take time for these changes to bring about a positive effect. For example, as of May 2016, data on the public shipyards' workforce showed that 32 percent of all employees had fewer than 5 years of experience. According to Navy officials, this workforce inexperience negatively affects the productivity of the shipyards, and it will take several years for them to attain full productivity.

Just last week, we issued another report, prepared in response to direction from this committee, examining the ability of the Navy's public shipyards to support the Navy's readiness needs.<sup>17</sup> We found that capacity limitations as well as the poor condition of the shipyards' facilities and equipment contributed to the maintenance delays we discussed earlier and were hindering the shipyards' ability to support the Navy. Specifically, we found that the shipyards will be unable to support 73—or about one-third—of 218 maintenance periods planned over the next 23 years. In addition, this estimate did not factor in planned increases to the fleet. We made three recommendations, with which the Navy agreed to take steps to improve its management of capital investment in the shipyards. However, we noted that at current average funding levels it would take at least 19 years and a Navy-estimated \$4.86 billion to clear the backlog of restoration and modernization projects at the shipyards. Furthermore, this estimate does not include the \$9 billion that the Navy estimates it will need for capacity and capability upgrades over the next 12 years to support maintenance operations for the current fleet.

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<sup>17</sup>GAO, *Naval Shipyards: Actions Needed to Improve Poor Conditions that Affect Operations*, [GAO-17-548](#) (Washington, D.C.: Sept. 12, 2017).

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## Navy Readiness Rebuilding is Part of a Broader DOD Effort

In September 2016, we found that although DOD has stated that readiness rebuilding is a priority, implementation and oversight of department-wide readiness rebuilding efforts did not fully include key elements of sound planning, and the lack of these elements puts the overall rebuilding efforts at risk.<sup>18</sup> The Navy states that its overall goal for readiness recovery is to reach a predictable and sustainable level of global presence and surge capacity from year to year. The Navy identified carrier strike groups and amphibious ready groups as key force elements in its plan for readiness recovery and had set 2020 for reaching a predictable and sustainable level of global presence and surge capacity by implementing the optimized fleet response plan. However, we found in 2016 that the Navy faced significant challenges, such as delays in completing maintenance and emerging demands, in achieving its readiness recovery goals for carrier strike groups and amphibious ready groups, and projections show that the Navy will not meet its time frames for achieving readiness recovery.<sup>19</sup>

As a result, we recommended that DOD and the services establish comprehensive readiness goals, strategies for implementing them, and associated metrics that can be used to evaluate whether readiness recovery efforts are achieving intended outcomes. DOD generally concurred with our recommendations and, in November 2016, issued limited guidance to the military services on rebuilding readiness; it has also started to design a framework to guide the military services in achieving readiness recovery but has not yet implemented our recommendations. The Navy has since extended its time frame for readiness recovery to at least 2021, but it still has not developed specific benchmarks or interim goals for tracking and reporting on readiness recovery. Navy officials cited several challenges to rebuilding readiness, chief among them the continued high demand for its forces, the unpredictability of funding, and the current difficulty with beginning and completing ship maintenance on time.

In January 2017, the President directed the Secretary of Defense to conduct a readiness review and identify actions that can be implemented

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<sup>18</sup>GAO, *Military Readiness: DOD's Readiness Rebuilding Efforts May Be at Risk without a Comprehensive Plan*, [GAO-16-841](#) (Washington, D.C.: Sept. 7, 2016).

<sup>19</sup>GAO, *Navy and Marine Corps: Services Face Challenges to Rebuilding Readiness*, [GAO-16-481RC](#) (Washington, D.C.: May 25, 2016).

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in fiscal year 2017 to improve readiness.<sup>20</sup> DOD and Navy officials told us that, as part of this readiness review, the Navy prioritized immediate readiness gaps and shortfalls. These officials added that this review would guide the Navy's investment decisions in future budget cycles, with the intention to rebuild readiness and prepare the force for future conflicts. However, high demand for naval presence will continue to put pressure on a fleet that is already stretched thin across the globe. Looking to the future, the Navy has plans to grow its fleet by as much as 30 percent, but it has not yet shown the ability to adequately man, maintain, and operate the current fleet. These readiness problems need to be addressed and will require the Navy to implement our recommendations—particularly in the areas of assessing the risks associated with overseas basing, reassessing sailor workload and the factors used to size ship crews, managing investments in its shipyards, and applying sound planning and sustained management attention to its readiness rebuilding efforts. In addition, continued congressional oversight will be needed to ensure that the Navy demonstrates progress in addressing its maintenance, training, and other challenges.

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Chairmen McCain, Ranking Member Reed, and Members of the Committee, this concludes my prepared statement. I would be pleased to respond to any questions you may have at this time.

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<sup>20</sup>National Security Presidential Memorandum, *Rebuilding the U.S. Armed Forces*, 82 Fed. Reg. 8,983 (Jan. 27, 2017).

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## GAO Contact and Staff Acknowledgements

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Contact points for our offices of Congressional Relations and Public Affairs may be found on the last page of this statement. GAO staff who made key contributions to this testimony are Suzanne Wren, Assistant Director; Steven Banovac, Chris Cronin, Kerri Eisenbach, Joanne Landesman, Amie Lesser, Felicia Lopez, Tobin McMurdie, Shari Nikoo, Cody Raysinger, Michael Silver, Grant Sutton, and Chris Watson.

# Appendix I: Implementation Status of Prior GAO Recommendations Cited in this Testimony

Over the past three years, we issued several reports related to Navy readiness cited in this statement. Table 1 summarizes the status of recommendations made in these reports, which contained a total of 14 recommendations. The Department of Defense generally concurred with all of these recommendations but has implemented only one of them to date. For each of the reports, the specific recommendations and their implementation status are summarized in tables 2 through 5.

**Table 1: Status of GAO Recommendations on Navy Readiness Since 2015**

Product date	Product title and number	Number of recommendations	
		Open	Implemented
September 12, 2017	<i>Naval Shipyards: Actions Needed to Improve Poor Conditions that Affect Operations (GAO-17-548)</i>	3	0
May 18, 2017	<i>Navy Force Structure: Actions Needed to Ensure Proper Size and Composition of Ship Crews (GAO-17-413)</i>	4	0
September 7, 2016	<i>Military Readiness: DOD's Readiness Rebuilding Efforts May Be at Risk without a Comprehensive Plan (GAO-16-841)</i>	5	0
May 29, 2015	<i>Navy Force Structure: Sustainable Plan and Comprehensive Assessment Needed to Mitigate Long-Term Risks to Ships Assigned to Overseas Homeports (GAO-15-329)</i>	1	1
<b>Total</b>		<b>13</b>	<b>1</b>

Source: GAO analysis. | GAO-17-809T

Note: The two other reports cited in this testimony, *Military Readiness: Progress and Challenges in Implementing the Navy's Optimized Fleet Response Plan (GAO-16-466R)* and *Navy and Marine Corps: Services Face Challenges to Rebuilding Readiness (GAO-16-481RC)*, did not contain recommendations.

**Table 2: Status of Recommendations from *Naval Shipyards: Actions Needed to Improve Poor Conditions that Affect Operations (GAO-17-548)***

Recommendation #1:	Status:
<p>The Secretary of the Navy should develop a comprehensive plan for shipyard capital investment that establishes</p> <ul style="list-style-type: none"> <li>the desired goal for the shipyards' condition and capabilities;</li> <li>an estimate of the full costs to implement the plan, addressing all relevant requirements, external risk factors, and associated planning costs; and</li> <li>metrics for assessing progress toward meeting the goal that include measuring the effectiveness of capital investments.</li> </ul>	<p>Open</p>
	<p><b>Concurrence:</b> Yes</p>
	<p><b>Comments:</b> In September 2017, the Department of Defense stated that the Navy will develop a comprehensive plan for shipyard capital investment that establishes shipyard goals, estimates of the full costs, and metrics for assessing progress. This action is not yet complete.</p>

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**Recommendation #2:**

The Secretary of the Navy should conduct regular management reviews that include all relevant stakeholders to oversee implementation of the plan, review metrics, assess the progress made toward the goal, and make adjustments, as necessary, to ensure that the goal is attained.

**Status:** Open

**Concurrence:** Yes

**Comments:** In September 2017, the Department of Defense stated that the Navy will conduct regular management reviews that include all relevant stakeholders to oversee implementation of the plan, review metrics, assess the progress made toward the goal, and make adjustments as necessary. This action is not yet complete.

**Recommendation #3:**

The Secretary of the Navy should provide regular reporting to key decision makers and Congress on the progress the shipyards are making to meet the goal of the comprehensive plan, along with any challenges that hinder that progress, such as cost. This may include reporting on progress to reduce the shipyards' facilities restoration and modernization backlogs, improve their condition and configuration, and recapitalize capital equipment.

**Status:** Open

**Concurrence:** Yes

**Comments:** In September 2017, the Department of Defense stated that the Navy will provide regular reporting to key decision makers and Congress on the progress the shipyards are making to meet the goal of the comprehensive plan. This action is not yet complete.

Source: GAO analysis. | GAO-17-809T

**Table 3: Status of Recommendations from Navy Force Structure: Actions Needed to Ensure Proper Size and Composition of Ship Crews (GAO-17-413)**

**Recommendation #1:**

To ensure that the Navy's manpower requirements are current and analytically based and will meet the needs of the existing and future surface fleet, the Under Secretary of Defense for Personnel and Readiness should direct the Secretary of the Navy to have the Navy conduct a comprehensive reassessment of the Navy standard workweek and make any necessary adjustments.

**Status:** Open

**Concurrence:** Yes

**Comments:** DOD did not provide a specific response to this recommendation. Instead, DOD reiterated its commitment to ensuring that the Navy's manpower requirements are current and analytically based and will meet the needs of the existing and future surface fleet. As of August 2017, no specific action on this recommendation has been taken.

**Recommendation #2:**

To ensure that the Navy's manpower requirements are current and analytically based and will meet the needs of the existing and future surface fleet, the Under Secretary of Defense for Personnel and Readiness should direct the Secretary of the Navy to have the Navy update guidance to require examination of in-port workload and identify the manpower necessary to execute in-port workload for all surface ship classes.

**Status:** Open

**Concurrence:** Yes

**Comments:** DOD did not provide a specific response to this recommendation. Instead, DOD reiterated its commitment to ensuring that the Navy's manpower requirements are current and analytically based and will meet the needs of the existing and future surface fleet. As of August 2017, no specific action on this recommendation has been taken.

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**Recommendation #3:**

To ensure that the Navy's manpower requirements are current and analytically based and will meet the needs of the existing and future surface fleet, the Under Secretary of Defense for Personnel and Readiness should direct the Secretary of the Navy to have the Navy develop criteria and update guidance for reassessing the factors used to calculate manpower requirements periodically or when conditions change.

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**Status:** Open

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**Concurrence:** Yes

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**Comments:** DOD did not provide a specific response to this recommendation. Instead, DOD reiterated its commitment to ensuring that the Navy's manpower requirements are current and analytically based and will meet the needs of the existing and future surface fleet. As of August 2017, no specific action on this recommendation has been taken.

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**Recommendation #4:**

To ensure that the Navy's manpower requirements are current and analytically based and will meet the needs of the existing and future surface fleet, the Under Secretary of Defense for Personnel and Readiness should direct the Secretary of the Navy to have the Navy identify personnel needs and costs associated with the planned larger Navy fleet size, including consideration of the updated manpower factors and requirements.

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**Status:** Open

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**Concurrence:** Yes

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**Comments:** DOD did not provide a specific response to this recommendation. Instead, DOD reiterated its commitment to ensuring that the Navy's manpower requirements are current and analytically based and will meet the needs of the existing and future surface fleet. As of August 2017, no specific action on this recommendation has been taken.

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Source: GAO analysis. | GAO-17-809T

**Appendix I: Implementation Status of Prior  
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**Table 4: Status of Recommendations from *Military Readiness: DOD's Readiness Rebuilding Efforts May Be at Risk without a Comprehensive Plan* (GAO-16-841)**

<p><b>Recommendation #1:</b></p> <p>To ensure that the department can implement readiness rebuilding efforts, the Secretary of Defense should direct the Secretaries of the Departments of the Army, the Navy, and the Air Force to establish comprehensive readiness rebuilding goals to guide readiness rebuilding efforts and a strategy for implementing identified goals, to include resources needed to implement the strategy.</p>	<p><b>Status:</b> Open</p> <p><b>Concurrence:</b> Partial</p> <p><b>Comments:</b> As of August 2017, DOD had not established comprehensive readiness rebuilding goals to guide readiness rebuilding efforts and a strategy for implementing identified goals, to include resources needed to implement the strategy.</p>
<p><b>Recommendation #2:</b></p> <p>To ensure that the department can implement readiness rebuilding efforts, the Secretary of Defense should direct the Secretaries of the Departments of the Army, the Navy, and the Air Force to develop metrics for measuring interim progress at specific milestones against identified goals for all services.</p>	<p><b>Status:</b> Open</p> <p><b>Concurrence:</b> Partial</p> <p><b>Comments:</b> As of August 2017, DOD had not developed metrics for measuring interim progress at specific milestones against identified readiness rebuilding goals for each of the military services.</p>
<p><b>Recommendation #3:</b></p> <p>To ensure that the department can implement readiness rebuilding efforts, the Secretary of Defense should direct the Secretaries of the Departments of the Army, the Navy, and the Air Force to identify external factors that may impact readiness recovery plans, including how they influence the underlying assumptions, to ensure that readiness rebuilding goals are achievable within established time frames. This should include, but not be limited to, an evaluation of the impact of assumptions about budget, maintenance time frames, and training that underpin the services' readiness recovery plans.</p>	<p><b>Status:</b> Open</p> <p><b>Concurrence:</b> Partial</p> <p><b>Comments:</b> As of August 2017, DOD had not identified external factors that may impact readiness recovery plans.</p>
<p><b>Recommendation #4:</b></p> <p>To ensure that the department has adequate oversight of service readiness rebuilding efforts and that these efforts reflect the department's priorities, the Secretary of Defense should validate the service-established readiness rebuilding goals, strategies for achieving the goals, and metrics for measuring progress, and revise as appropriate.</p>	<p><b>Status:</b> Open</p> <p><b>Concurrence:</b> Yes</p> <p><b>Comments:</b> As of August 2017, DOD had not validated the service-established readiness rebuilding goals, strategies for achieving the goals, and metrics for measuring progress, and revise as appropriate.</p>
<p><b>Recommendation #5:</b></p> <p>To ensure that the department has adequate oversight of service readiness rebuilding efforts and that these efforts reflect the department's priorities, the Secretary of Defense should develop a method to evaluate the department's readiness recovery efforts against the agreed-upon goals through objective measurement and systematic analysis.</p>	<p><b>Status:</b> Open</p> <p><b>Concurrence:</b> Yes</p> <p><b>Comments:</b> As of August 2017, DOD had not developed a method to evaluate the department's readiness recovery efforts against the agreed-upon goals through objective measurement and systematic analysis.</p>

Source: GAO analysis. | GAO-17-809T



Appendix I: Implementation Status of Prior  
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**Table 5: Status of Recommendations from *Navy Force Structure: Sustainable Plan and Comprehensive Assessment Needed to Mitigate Long-Term Risks to Ships Assigned to Overseas Homeports* (GAO-15-329)**

Recommendation #1:	Status: Implemented
To balance combatant commanders' demands for forward presence with the Navy's needs to sustain a ready force over the long term and identify and mitigate risks consistent with Federal Standards for Internal Control, the Secretary of Defense should direct the Secretary of the Navy to fully implement its optimized fleet response plan and develop and implement a sustainable operational schedule for all ships homeported overseas.	<b>Concurrence:</b> Yes <b>Comments:</b> In August 2015, the Navy reported that it had approved and implemented revised optimized fleet response plan schedules for all ships homeported overseas with six different operational schedules for various naval forces homeported in different overseas locations. However, when updating data for this testimony, U.S. Pacific Fleet officials stated that the revised operational schedules for the cruisers and destroyers homeported in Japan were still under review and had not yet been employed.
Recommendation #2:	Status: Open
To balance combatant commanders' demands for forward presence with the Navy's needs to sustain a ready force over the long term and identify and mitigate risks consistent with Federal Standards for Internal Control, the Secretary of Defense should direct the Secretary of the Navy to develop a comprehensive assessment of the long-term costs and risks to the Navy's surface and amphibious fleet associated with its increasing reliance on overseas homeporting to meet presence requirements, make any necessary adjustments to its overseas presence based on this assessment, and reassess these risks when making future overseas homeporting decisions and developing future strategic laydown plans.	<b>Concurrence:</b> Yes <b>Comments:</b> As of August 2017, the Navy had not completed its assessment of the long-term costs and risks to the Navy's surface and amphibious fleet associated with its increasing reliance on overseas homeporting to meet presence requirements.

Source: GAO analysis. | GAO-17-809T

# Appendix II: Summary of Major Mishaps for Navy Ships at Sea for Fiscal Years 2009 Through 2017, as of August 2017

The Navy defines a class A mishap as one that results in \$2 million or more in damages to government or other property, or a mishap that resulted in a fatality or permanent total disability.<sup>1</sup> We analyzed data compiled by the Naval Safety Center for fiscal years 2009 through 2017 to provide a summary of major Navy mishaps at sea (see table 6).

**Table 6: Navy Class A Collisions, Allisions,<sup>a</sup> and Groundings, Fiscal Years 2009 – 2017, as of August 2017<sup>b</sup>**

Date	Incident Description	Location	Loss of Life
August 21, 2017	A guided missile destroyer collided with a civilian oil tanker, resulting in extensive damage to the destroyer and 10 Navy sailors killed.	South China Sea	10
June 17, 2017	A guided missile destroyer collided with a civilian container ship, resulting in extensive damage to the destroyer and 7 Navy sailors killed.	Southwest of Yokosuka, Japan	7
January 31, 2017	A guided missile cruiser ran aground while anchoring, damaging its propeller. No injuries were reported, but the cruiser required repairs.	Near Yokosuka, Japan	0
September 4, 2016	An unmanned undersea vehicle sank after a collision with a Military Sealift Command support vessel.	Atlantic Ocean	0
August 18, 2016	Following a routine strategic deterrence mission, a nuclear ballistic missile submarine and a Military Sealift Command support vessel collided.	Strait of Juan de Fuca, Washington	0
October 6, 2014	While proceeding outbound via Thimble Shoals Channel, a dock landing ship allided with a buoy.	Virginia Capes, Virginia	0
February 12, 2014	A guided missile frigate ran aground while entering Samsun, Turkey, causing damage to the ship's propeller.	Samsun, Turkey	0
November 16, 2013	An aerial target drone hit a guided missile cruiser during a training exercise.	Southern California	0
January 17, 2013	A mine countermeasure ship ran aground while operating in the Sulu Sea, near Tubbataha Reef.	Sulu Sea, Philippines	0
October 13, 2012	A cruiser collided with a submarine off the coast of Jacksonville, Florida.	Near Jacksonville, Florida	0
August 12, 2012	A guided missile destroyer entering the Arabian Gulf collided with an outbound civilian tanker.	Arabian Gulf	0
May 16, 2012	An amphibious assault ship collided with a Military Sealift Command oiler during replenishment.	Southern California	0
April 18, 2012	A Special Operations Craft collided with a civilian fishing boat, killing a local fisherman.	Philippines	1
June 21, 2011	A submarine tender sustained loss of rudder control, resulting in an allision with a channel buoy.	Bahrain	0

<sup>1</sup>Office of the Chief of Naval Operations Instruction 5102.1D, Marine Corps Order P5102.1B, *Navy and Marine Corps Mishap and Safety Investigation, Reporting, And Record Keeping Manual* (Jan. 7, 2005) (Oct. 5, 2010, change transmittal 2). A class A mishap also includes the destruction of a DOD aircraft.

**Appendix II: Summary of Major Mishaps for  
Navy Ships at Sea for Fiscal Years 2009  
Through 2017, as of August 2017**

<b>Date</b>	<b>Incident Description</b>	<b>Location</b>	<b>Loss of Life</b>
December 18, 2010	A submarine was involved in an underwater allision with a range sonar array. The submarine was not damaged.	Not specified	0
March 20, 2009	A submarine collided with an amphibious ship.	Strait of Hormuz	0

Source: GAO analysis of Navy data. | GAO-17-809T

<sup>a</sup>The Navy refers to incidents where a ship collides with a stationary object, such as a buoy or pier, as an allision.

<sup>b</sup>The Navy defines a class A mishap as one that results in \$2 million or more in damages to government or other property, or a mishap that resulted in a fatality or permanent total disability.

Note: The USS *Lake Champlain* collision with a South Korean fishing boat on May 9, 2017 is not classified as a class A mishap.

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# Appendix III: Related GAO Products

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Report numbers with a C or RC suffix are Classified. Classified reports are available to personnel with the proper clearances and need to know, upon request.

*Naval Shipyards: Actions Needed to Improve Poor Conditions that Affect Operation.* [GAO-17-548](#). Washington, D.C.: September 12, 2017.

*Navy Readiness: Actions Needed to Address Persistent Maintenance, Training, and Other Challenges Facing the Fleet.* [GAO-17-798T](#). Washington, D.C.: September 7, 2017.

*Department of Defense: Actions Needed to Address Five Key Mission Challenges.* [GAO-17-369](#). Washington, D.C.: June 13, 2017.

*Military Readiness: Coastal Riverine Force Challenges.* [GAO-17-462C](#). Washington, D.C.: June 13, 2017. (SECRET)

*Navy Force Structure: Actions Needed to Ensure Proper Size and Composition of Ship Crews.* [GAO-17-413](#). Washington, D.C.: May 18, 2017.

*Military Readiness: DOD's Readiness Rebuilding Efforts May Be at Risk without a Comprehensive Plan.* [GAO-16-841](#). Washington, D.C.: September 7, 2016.

*Navy and Marine Corps: Services Face Challenges to Rebuilding Readiness.* [GAO-16-481RC](#). Washington, D.C.: May 25, 2016. (SECRET//NOFORN)

*Military Readiness: Progress and Challenges in Implementing the Navy's Optimized Fleet Response Plan.* [GAO-16-466R](#). Washington, D.C.: May 2, 2016.

*Navy Force Structure: Sustainable Plan and Comprehensive Assessment Needed to Mitigate Long-Term Risks to Ships Assigned to Overseas Homeports.* [GAO-15-329](#). Washington, D.C.: May 29, 2015.

*Military Readiness: Navy Needs to Assess Risks to Its Strategy to Improve Ship Readiness.* [GAO-12-887](#). Washington, D.C.: September 21, 2012.

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*Force Structure: Improved Cost Information and Analysis Needed to Guide Overseas Military Posture Decisions.* [GAO-12-711](#). Washington, D.C.: June 6, 2012.

*Military Readiness: Navy Needs to Reassess Its Metrics and Assumptions for Ship Crewing Requirements and Training.* [GAO-10-592](#). Washington, D.C.: June 9, 2010.

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