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Navy Needs to Assess Risks to Its Strategy to Improve Ship Readiness

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MILITARY READINESS

Navy Needs to Assess Risks to Its Strategy to Improve Ship Readiness

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Highlights

Highlights of GAO-12-887, a report to congressional committees

Why GAO Did This Study

In 2010, the Navy concluded that decisions it made to increase efficiencies of its surface force had adversely affected ship readiness and service life. To improve ship readiness the Navy developed a new strategy, which includes several initiatives. House Report 112-78, accompanying a proposed bill for the Fiscal Year 2012 National Defense Authorization Act (H.R.1540), directed GAO to review the recent Navy initiatives. GAO assessed 1) how the Navy evaluates the material readiness of its surface combatant and amphibious warfare ships and the extent to which data indicate trends or patterns in the material readiness of these ships, and 2) the extent to which the Navy has taken steps to improve the readiness of its surface combatant and amphibious warfare ships, including implementing its new readiness strategy. GAO analyzed Navy policies, material and readiness data from January 2008—two years prior to the release of the Navy's 2010 report on the degradation of surface force readiness—through March 2012, two years after the release of the report, and interviewed headquarters and operational officials and ship crews.

What GAO Recommends

GAO recommends that the Navy conduct a comprehensive assessment of the risks the new strategy faces and develop alternatives to mitigate these risks. DOD partially concurred, but felt that current assessments sufficiently identify risks. GAO continues to believe that a comprehensive assessment that takes into account the full range of risk to the overall strategy is needed.

View GAO-12-887. For more information, contact Sharon Pickup at (202) 512-9619 or pickups@gao.gov.

What GAO Found

Recent data show variations in the material readiness of different types of ships, but do not reveal any clear trends of improvement or decline for the period from 2008 to 2012. The Navy uses a variety of means to collect, analyze, and track the material readiness of its surface combatant and amphibious warfare ships. Three data sources the Navy uses to provide information on the material readiness of ships are: casualty reports, which reflect equipment malfunctions; Defense Readiness Reporting System-Navy (DRRS-N) reports; and Board of Inspection and Survey (INSURV) material inspection reports. These data sources can be viewed as complementary, together providing data on both the current and life cycle material readiness of the surface force. INSURV and casualty report data show that the material readiness of amphibious warfare ships is lower than that of frigates and destroyers. However, there is no clear upward or downward trend in material readiness across the entire Navy surface combatant and amphibious warfare ships. From 2010 to March 2012, INSURV data indicated a slight improvement in the material readiness of the surface combatant and amphibious warfare fleet, but over that period casualty reports from the ships increased, which would indicate a decline in material readiness. DRRS-N data also show differences in material readiness between ship types, but the precise differences are classified and therefore are not included in this report.

The Navy has taken steps to improve the readiness of its surface combatant and amphibious warfare ships, including a new strategy to better integrate maintenance actions, training, and manning, but it faces risks to fully implementing its strategy and has not assessed these risks or developed alternatives to mitigate them. In March 2012, near the end of a year-long pilot, the Navy issued its Surface Force Readiness Manual, which calls for integrating and synchronizing maintenance, training and manning among multiple organizations. The Navy expects this strategy to provide a standard, predictable path for ships to achieve and sustain surface force readiness, but certain factors, such as high operational tempos and supporting organizations' staffing levels, could delay the entry of some ships into the strategy and the execution of the strategy. For example, one supporting organization reported needing an additional 680 personnel to fully execute the strategy. As of August 2012, the Navy plans to reflect its funding needs for 410 personnel in its fiscal year 2014 budget request and the remaining 270 in subsequent requests. Also, due to high operational tempos the phased implementation of some ships into the strategy may be delayed. Furthermore, ships that do not execute the strategy's maintenance periods as planned will have lifecycle maintenance actions deferred. GAO has previously reported that risk assessment can inform effective program management by helping managers make decisions about the allocation of finite resources, and alternative courses of action. However, the Navy has not undertaken a comprehensive assessment of risks to the implementation of its strategy, nor has it developed alternatives to mitigate its risks. GAO believes operational tempo, supporting organizations' staffing levels, and other risks may hinder the Navy's full implementation of its surface force readiness strategy. If not addressed, this could lead to deferrals of lifecycle maintenance, which have in the past contributed to increased maintenance costs, reduced readiness, and shorter service lives for some ships.

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United States Government Accountability Office
Washington, DC 20548

September 21, 2012

The Honorable Carl Levin
Chairman
The Honorable John McCain
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Howard P. "Buck" McKeon
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives

In support of national interests, the Navy maintains a large surface force to meet its current missions and long-term obligations, including ensuring sea control, projecting power, and providing maritime security. The Navy's plan, which is to grow its current fleet of 286 ships to about 300 by 2019, is dependent both on its ability to acquire new ships and to maintain current ships for their expected service lives. The costs of procuring new ships and maintaining current ships can both be significant. For example, the cost of a new destroyer is more than $1.6 billion, and in fiscal year 2011, the Navy spent an average of $11 million maintaining each of its 62 destroyers. In the past, when faced with the high costs of maintaining ships' material conditions and keeping them mission-ready, the Navy elected to retire ships early—before they reached their expected service lives. For example, in January 2012, the Navy announced plans to retire seven cruisers and two amphibious ships early, in 2013 and 2014. Navy officials later testified that the service would redirect the savings from these early retirements to fund the maintenance of its remaining ships.

In 2010, a Navy report found that the material readiness of its surface force had declined over the previous ten years and was well below the levels necessary to support reliable, sustained operations at sea and achieve expected ship service lives. Among other things, the report found that the declines in material readiness were attributable to reductions in the number of assessments and inspections, deferrals of scheduled maintenance, and reductions in the length of major repair periods from 15 to 9 weeks. In response, the Navy developed several maintenance

initiatives and a new readiness strategy that it expects will improve the material condition of its ships and help them achieve their expected service lives. The strategy and initiatives are in various stages of implementation.

In House Report 112-78, accompanying a bill for the Fiscal Year 2012 National Defense Authorization Act (H.R. 1540), the House Armed Services Committee directed GAO to review the Navy's initiatives to improve the material condition of its surface ship fleet.[1] This report analyzes 1) how the Navy evaluates the material readiness of its surface combatant and amphibious warfare ships and the extent to which data indicate trends or patterns in the material readiness of these ships, and 2) the extent to which the Navy has taken steps intended to improve the readiness of its surface combatant and amphibious warfare ships, including efforts to implement its recent strategy.

To address our first objective, we analyzed Navy policies and procedures for determining surface force material readiness, as well as various studies and reports on the Navy's material readiness process. We also interviewed officials from Navy commands that are responsible for maintaining, assessing, evaluating, and inspecting the material condition of the Navy's surface ships. In addition, we analyzed readiness, maintenance, and inspection data to determine any changes in readiness from 2008—two years prior to the release of the Navy's 2010 report on the degradation of surface force readiness—through March 2012, two years after the release of the report. Specifically, we analyzed data for the Navy's guided-missile cruisers (CG 47 class), guided-missile destroyers (DDG 51 class), frigates (FFG 7 class), amphibious assault ships (LHA 1 and LHD 1 classes), amphibious transport dock ships (LPD 4 and LPD 17 classes), and dock landing ships (LSD 41 and LSD 49 classes). To address our second objective, we reviewed relevant Navy instructions on Navy material readiness, including the Navy's Surface Force Readiness Manual, and prior GAO work on risk management. We also interviewed Navy training and maintenance officials to discuss how the Navy is implementing its new readiness strategy. Finally, we met with ship personnel to discuss possible challenges in implementing the new readiness strategy and efforts.

[1] H.R. Rep. No-112-78, at 110 (2011).

We conducted this performance audit from July 2011 to September 2012 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. We discuss our scope and methodology in more detail in appendix I.

Background

The Navy's fleet includes aircraft carriers, cruisers, destroyers, frigates, littoral combat ships, submarines, amphibious warfare, mine warfare, combat logistics, and fleet support ships. Our review focused on surface combatant and amphibious warfare ships, which constitute slightly less than half of the total fleet. Table 1 shows the classes of surface ships we reviewed along with their numbers, expected service lives, and current average ages.

Table 1: Classes of Surface Ships Reviewed

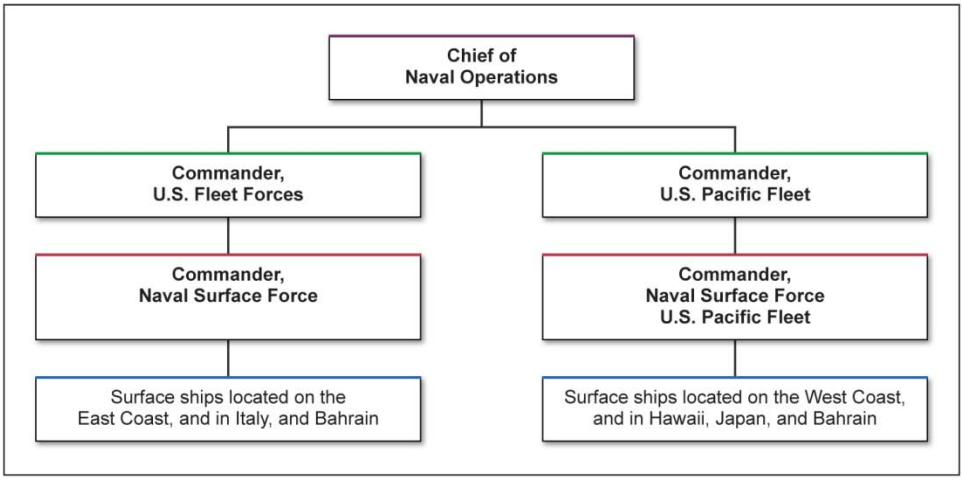
Ship Class	Ship Numbers	Expected Service Life of Ship Class (years)	Current Average Age of Active Ship Class (years)
Surface Combatants	**107**		
Cruisers (CG 47)	22	35	22
Destroyers	28	35	16
• DDG 51(I and II)	34	40	7
• DDG 51 (IIA)			
Frigates (FFG 7)	23	30	28
Amphibious Warfare Ships	**28**		
LHA 1	1	35	32
LPD 4	1	35	44
LHD 1	8	40	15
LPD 17	6	40	4
LSD 41	8	40	24
LSD 49	4	40	16
Total	**135**		

Source: GAO analysis of Navy data.

Figure 1 shows the administrative chain of command for Navy surface ships. The U.S. Pacific Fleet and U.S. Fleet Forces Command organize, man, train, maintain, and equip Navy forces, develop and submit budgets, and develop required and sustainable levels of fleet readiness, with U.S.

Fleet Forces Command serving as the lead for fleet training requirements and policies to generate combat-ready Navy forces. The Navy's surface type commanders—Commander, Naval Surface Force, U.S. Pacific Fleet and Commander, Naval Surface Force, Atlantic have specific responsibilities for the maintenance, training, and readiness of their assigned surface ships.[2]

Figure 1: Administrative Chain of Command



Source: GAO analysis of Navy data.

To meet the increased demands for forces following the events of September 2001, the Navy established a force generation model—the Fleet Response Plan—and in August 2006 the Navy issued a Fleet Response Plan instruction.[3] The plan seeks to build readiness so the Navy can surge a greater number of ships on short notice while continuing to meet its forward-presence requirements. As depicted in table 2, there are four phases in the Fleet Response Plan 27-month cycle that applies to surface combatant and amphibious warfare ships. The four Fleet Response Plan phases are (1) basic, or unit-level training; (2) integrated training; (3) sustainment (which includes deployment); and (4) maintenance.

[2] The Navy also has two air type commanders responsible for aircraft and aircraft carriers assigned to their geographic areas of responsibility and two submarine type commanders.

[3] Office of the Chief of Naval Operations Instruction 3000.15, *Fleet Response Plan (FRP)* (Aug. 31, 2006).

Table 2: The 27-month Fleet Response Plan for Surface Combatant and Amphibious Warfare Ships

Phase	Basic	Integrated	Sustainment	Maintenance
Activities	Sea trials, ammunition loading and unloading, unit-level training	Multi-ship training exercises up to the carrier strike group level	Continued advanced multi-ship training, including carrier strike group exercises after deployment	Includes major maintenance overhauls

Source: GAO analysis of Navy data.

In September 2009, the Commanders of U.S. Pacific Fleet and U.S. Fleet Forces directed Vice Admiral Balisle, USN-Ret., to convene and lead a Fleet Review Panel to assess surface force readiness. The Panel issued its report in February 2010. It stated that Navy decisions made to increase efficiencies throughout the fleet had adversely affected surface ship current readiness and life cycle material readiness.[4] Reducing preventative maintenance requirements and the simultaneous cuts to shore infrastructure were two examples of the detrimental efficiencies cited in the report. The report also stated that if the surface force stayed on the present course, surface ships would not reach their expected service lives. For instance, it projected that destroyers would achieve 25-27 years of service life instead of the 35-40 years expected. The report concluded that each decision to improve efficiency may well have been an appropriate attempt to meet Navy priorities at the time, but there was limited evidence to identify any changes that were made with surface force readiness as the top priority—efficiency was sought over effectiveness. The Fleet Review Panel made several maintenance, crewing, and training recommendations that it stated should be addressed not in isolation but as a circle of readiness. According to the report, it will take a multi-faceted, systematic solution to stop the decline in readiness, and begin recovery.

We have previously reported on the Navy's initiatives to achieve greater efficiencies and reduce costs. In June 2010, we issued a report regarding the training and crew sizes of cruisers and destroyers. In it we found that changes in training and reductions in crew sizes had contributed to declining material conditions on cruisers and destroyers. We

[4] Fleet Review Panel, Final Report, *Fleet Review Panel of Surface Force Readiness* (Feb. 26, 2010). For the purposes of this report, we are defining current readiness as ships' abilities to meet near term operational requirements and life cycle material readiness as ships' abilities to achieve their expected service lives.

recommended that the Navy reevaluate its ship workload requirements and develop additional metrics to measure the effectiveness of Navy training. DOD agreed with these recommendations.[5] Also, in July 2011 we reported[6] on the training and manning information presented in the Navy's February 2011[7] report to Congress regarding ship readiness. The Navy's report included information on ships' ability to perform required maintenance tasks, pass inspection, and any projected effects on the lifespan of individual ships. We concluded that the Navy's report did not provide discussion of data limitations or caveats to any of the information it presented, including its conclusions and recommendations. However, we found that the Navy did outline specific actions that it was taking or planned to take to address the declines in readiness due to manning and crew changes.

In January 2011, the commanders of U.S. Fleet Forces Command and U.S. Pacific Fleet jointly instructed their type commanders to develop a pilot program to "establish a sequenced, integrated, and building block approach" to achieve required readiness levels. This pilot program began in March 2011, and in March 2012, near the end of the pilot, the Navy issued its Surface Force Readiness Manual, which details a new strategy for optimizing surface force readiness throughout the Fleet Response Plan.[8] The strategy calls for integrating and synchronizing maintenance, training, and resources among multiple organizations such as Afloat Training Groups and Regional Maintenance Centers.

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

[6] GAO, *Military Readiness: Navy's Report to Congress on the Impact of Training and Crew Size on Surface Force Material Readiness*, GAO-11-746R (Washington, D.C.: July 2011).

[7] Department of the Navy, *Report to Congress: Impact of Training and Crew Size on Surface Force Material Readiness* (Washington, D.C.: February 2011).

[8] Commander, Naval Surface Force U.S. Pacific Fleet/Commander, Naval Surface Force Atlantic Instruction 3502.3. *Surface Force Readiness Manual* (Mar. 9, 2012).

Data Indicate Differences in Material Readiness Between Ship Types, but Do Not Reveal Readiness Trends Due to Limitations in the Data

For the period from 2008 to 2012, available data show variations in material readiness between different types of ships—such as material readiness differences between amphibious warfare ships and surface combatants—but data limitations prevent us from making any conclusions concerning improvements or declines in the overall readiness of the surface combatant and amphibious warfare fleet during the period. Through a variety of means and systems, the Navy collects, analyzes, and tracks data that show the material condition of its surface ships—in terms of both their current and life cycle readiness. Three of the data sources the Navy uses to provide information on the material condition of ships are casualty reports[9]; Defense Readiness Reporting System – Navy (DRRS-N) reports; and Board of Inspection and Survey (INSURV) material inspection reports. None of these individual data sources are designed to provide a complete picture of the overall material condition of the surface force. However, the data sources can be viewed as complementary and, when taken together, provide data on both the current and life cycle material readiness of the surface force. For example, some casualty report data must be updated every 72 hours and provides information on individual pieces of equipment that are currently degraded or out of commission. DRRS-N data is normally reported monthly and focuses on current readiness by presenting information on broader capability and resource areas, such as ship command, control, and communications, rather than individual equipment. INSURV data is collected less frequently—ships undergo INSURV inspections about once every 5 years—but the data is extensive, and includes inspection results for structural components, individual pieces of equipment, and broad systems, as well as assessments of a ship's warfighting capabilities. The INSURV data is used to make lifecycle decisions on whether to retain or decommission Navy ships. Casualty reports, DRRS-N data, and INSURV reports are all classified when they identify warfighting capabilities of individual ships. However, when casualty reports and INSURV information is consolidated and summarized above the individual ship level it is unclassified. Even summary DRRS-N data is classified, and therefore actual DRRS-N data is not included in this unclassified report. Table 3 provides additional details on each of the data sources.

[9] Casualty reports reflect equipment malfunctions that impact a ship's ability to support required mission areas and suggest a deficiency in mission essential equipment. We drew casualty report data from the Maintenance Figure of Merit program.

Table 3: Navy's Material Readiness Data Sources

Data Source	INSURV	DRRS-N	Casualty Reports
Data Owner	Navy Board of Inspection and Survey	Office of the Chief of Naval Operations	United States Fleet Forces Command and United States Pacific Fleet
Purpose and Types of Data Collected	Determines fitness of Navy ships for further service; assesses material condition to include equipment operating capability and demonstrational testing.	Measures current readiness in terms of capabilities, training, and resources (people, equipment, supplies, and ordnance).	Provides a measure of the material condition of a ship, in terms of deficiencies.
Limitations	Inspections may be delayed due to deployment, maintenance requirements, or other factors such as coordination of schedules.	Focus on ability to meet current mission requirements may not reflect elements of material condition requiring action in the long term, such as corrosion.	Casualty report data has not been consistently reported and can vary among ships due to differences in leadership philosophy, crew experience and training, and the number of independent assessments.
Frequency of Reports	Generally, every 48 to 60 months	Monthly/Within 24 hours of a significant change	As often as every 72 hours

Source: GAO analysis of Navy data.

Legend: INSURV = Board of Inspection and Survey and DRRS-N = Defense Readiness Reporting System–Navy.

INSURV and casualty report data from January 2008 through March 2012 consistently show differences in material readiness between different types of ships. As illustrated in Table 4, there are differences between frigates, destroyers, cruisers, and amphibious warfare ships in their overall INSURV ratings—which reflect ship abilities to carry out their primary missions; their INSURV Equipment Operational Capability scores—which reflect the material condition of 19 different functional areas; and their average numbers of casualty reports—which reflect material deficiencies in mission essential equipment. The differences within the average Equipment Operational Capability and casualty reports were found to be statistically significant. See additional details regarding the statistical significance of average Equipment Operational Capability scores and the average number of casualty reports in Appendix I.

Table 4: INSURV and CASREP Data by Ship Type: January 2008 - March 2012

January 2008 to March 2012		Frigates	Destroyers	Cruisers	Amphibious Ships
INSURV Overall Rating	Number of ships inspected	20	38	18	18
	'Unsatisfactory'	5%	3%	22%	6%
	'Degraded'	5%	14%	11%	28%
	'Satisfactory'	90%	84%	67%	67%
INSURV Average EOC Scores		0.806	0.829	0.786	0.746
Average Number of Casualty Reports per Ship		11.8	14.5	18.0	22.3

Source: GAO analysis of Navy data.

Notes: Percentages may not add to 100 percent due to rounding.

INSURV overall ratings are assigned based on the ship's ability to materially carry out its missions. A rating of 'satisfactory' indicates an ability to carry out all missions, 'degraded' indicates an inability to carry out one mission; a rating of 'unsatisfactory' indicates an inability to carry out more than one mission.

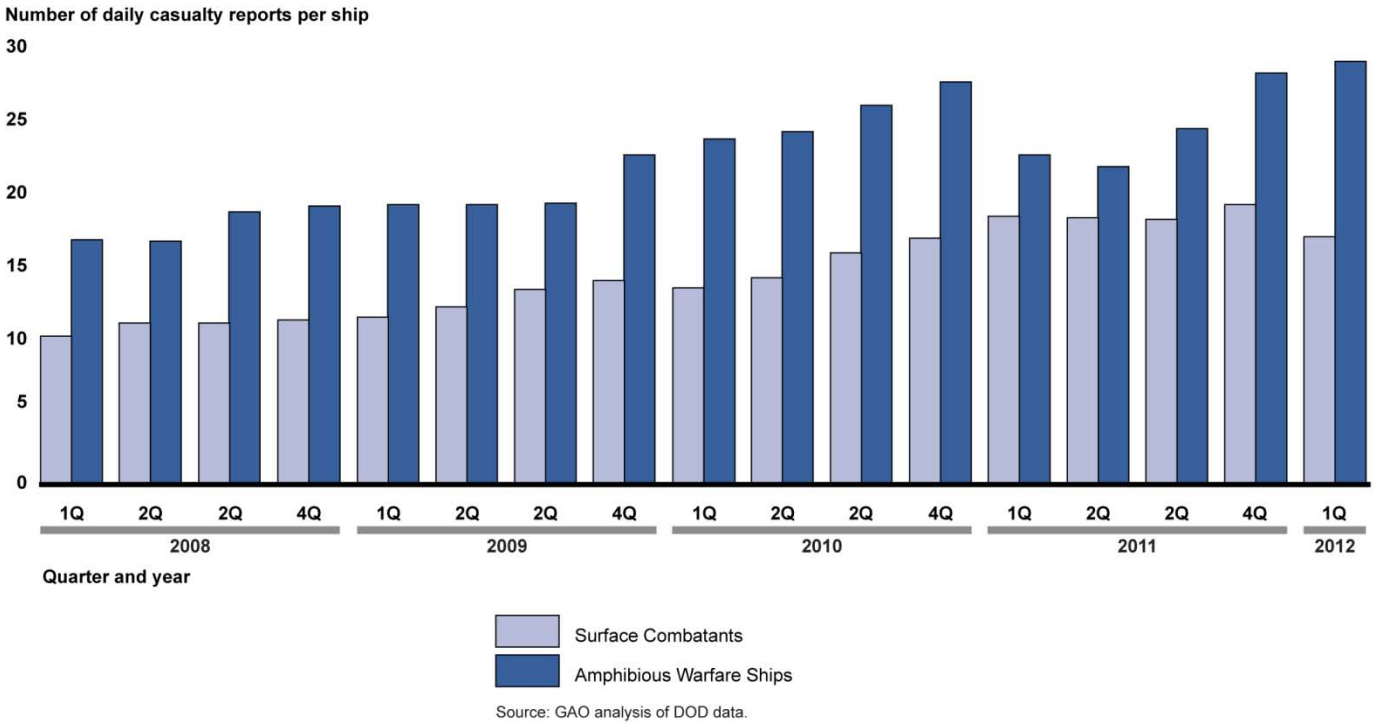
INSURV assigns Equipment Operational Capability scores to different functional areas of inspected ships' systems. The scores range from 0 to 1 with 1 being the best score. The average Equipment Operational Capability scores shown in table 4 are based on GAO analysis of INSURV scores for all 19 functional areas (18 areas in the case of amphibious ships). Differences in Equipment Operational Capability scores between ship types are statistically significant at the 95 percent confidence level. Differences in Average Number of Casualty Reports per Ship between ship types are statistically significant at the 95 percent confidence level. Differences in INSURV Overall Ratings were not assessed statistically. See additional statistical details in Appendix I.

For example, the data in table 4 shows that, for the time period covered, the material condition of amphibious ships is generally lower than that of frigates and destroyers. For example, a lower percentage of amphibious warfare ships received overall "satisfactory" ratings in INSURV inspections than destroyers and frigates; likewise, amphibious ships had lower average INSURV Equipment Operational Capability scores than those two types of ships. Amphibious warfare ships also have on average more casualty reports per ship than destroyers and frigates. According to Navy officials, some of these differences may result from differences in the size, complexity, and age of the various types of ships. Likewise, cruisers have a lower material condition than that of destroyers. The data show that 22 percent of cruisers were rated "unsatisfactory" compared to 3 percent of destroyers, and the average cruiser Equipment Operational Capability score of 0.786 was also lower than the destroyer score of 0.829. Finally, the average of 18 casualty reports per cruiser was about 24 percent higher than the 14.5 casualty reports per destroyer. DRRS-N data also show that there are readiness differences between the Navy's different types of ships but the precise differences are classified and therefore are not included in this report.

Material readiness data show some clear differences between types of ships as shown in table 4. However, when we considered the surface combatant and amphibious warfare ships in aggregate, we were unable to make any conclusions concerning trends in the overall readiness of these ships. One readiness measure—casualty reports—indicates that the material readiness of these ships has declined but other readiness measures show both upward and downward movement. Because of the relatively small number of INSURV inspections conducted each year, it is not possible to draw a conclusion about trends in the material readiness of surface combatant and amphibious warfare ships from January 2008 to March 2012 based on INSURV data.

Casualty report data from January 2008 to March 2012 show that there is a significant upward trend in the average daily number of casualty reports per ship for both surface combatants and amphibious warfare ships, which would indicate declining material readiness. Specifically, the average daily numbers of casualty reports per ship have been increasing at an estimated rate of about 2 and 3 per year, respectively. Furthermore, for both ship types, there is not a statistically significant difference in the trend when comparing the periods before February 2010—when the Fleet Review Panel's findings were published—and after February 2010. According to Navy officials, increases in casualty reports could be reflective of the greater numbers of material inspections and evaluations than in the past, which is likely to identify more material deficiencies and generate more casualty reports. Figure 2 shows the increases in casualty reports over time.

Figure 2: Average Number of Casualty Reports, per Ship, of Surface Combatant and Amphibious Warfare Ships by Quarter from January 2008 through March 2012



Source: GAO analysis of DOD data.

Table 5 shows the summary data for all the INSURV inspections of surface combatant and amphibious warfare ships that were conducted from January 2008 through March 2012.[10] Throughout the period, the data fluctuate in both an upward and downward direction. For example, the proportion of surface combatant and amphibious warfare ships rated 'satisfactory' fell 11 percent from 83 percent in 2008 to 72 percent in 2010, and then increased to 77 percent in 2011. Average Equipment Operational Capability scores also fluctuated throughout the period—increasing in 2011 and declining in 2009, 2010, and 2012. As previously noted, because of the relatively small number of INSURV inspections conducted each year, it is not possible to draw a conclusion about trends in the material readiness of surface combatant and amphibious warfare ships between 2008 and 2012 based on INSURV data.

[10] The data includes all first inspection data but does not include data from any re-inspections that were conducted following an "unsatisfactory" inspection.

Table 5: Average INSURV Equipment Operational Capability Scores for All Surface Combatant and Amphibious Warfare Ships from January 2008 through March 2012

INSURV by Calendar Year	Total Number and Percent of Surface Combatant and Amphibious Warfare Ships				Average Equipment Operational Capability Scores for Surface Combatant and Amphibious Warfare Ships
	Inspected	'Satisfactory'	'Degraded'	'Unsatis-factory'	
2008	29	24	3	2	0.796
		(83%)	(10%)	(7%)	
2009	23	19	2	2	0.795
		(83%)	(9%)	(9%)	
2010	25	18	5	2	0.785
		(72%)	(20%)	(8%)	
2011	13[a]	10	2	1	0.842
		(77%)	(15%)	(8%)	
2012[b]	4	3	1	0	0.836
		(75%)	(25%)	(0%)	

Source: GAO analysis of Navy data.

Note: Percentages may not add to 100 percent due to rounding.

[a]Because the Board of Inspection and Survey conducts INSURV inspections of all Navy ships, the number of INSURV inspections of surface combatant and amphibious warfare ships can vary widely from year to year.

[b]Data for 2012 goes through March 2012.

The casualty report and INSURV data that we analyzed are consistent with the findings of the Navy's Fleet Review Panel, which found that the material readiness of the Navy's ships had been declining prior to 2010. Our analysis showed a statistically significant increase in casualty reports between 2008 and 2010 which would indicate a declining material condition. Although the statistical significance of the INSURV data from 2008 to 2010 could not be confirmed due to the small number of ships that were inspected during this time period, that data showed declines in both the percentage of satisfactory inspections and average Equipment Operational Capability scores.

Navy Has Acted to Improve Readiness but Not Assessed Risks to Achieving Full Implementation of Its Recent Strategy

The Navy has taken steps intended to improve the readiness of its surface combatant and amphibious warfare ships. However, it faces risks to achieving full implementation of its recent strategy and has not assessed these risks or developed alternative implementation approaches to mitigate risks.

Navy Steps to Improve Surface Force Readiness

The Navy has taken several steps to help remedy problems it has identified in regard to maintaining the readiness of its surface combatant and amphibious warfare ships. In the past, material assessments, maintenance, and training were carried out separately by numerous organizations, such as the Regional Maintenance Centers and Afloat Training Groups. According to the Navy, this sometimes resulted in overlapping responsibilities and duplicative efforts. Further, the Navy has deferred maintenance due to high operational requirements. The Navy recognizes that deferring maintenance can affect readiness and increase the costs of later repairs. For example, maintenance officials told us that Navy studies have found that deferring maintenance on ballast tanks to the next major maintenance period will increase costs by approximately 2.6 times, and a systematic deferral of maintenance may cause a situation where it becomes cost prohibitive to keep a ship in service. This can lead to early retirements prior to ships reaching their expected service lives.

In the past few years the Navy has taken a more systematic and integrated approach to address its maintenance requirements and mitigate maintenance problems. For example, in November 2010 it established the Surface Maintenance Engineering Planning Program, which provides life cycle management of maintenance requirements, including deferrals, for surface ships and monitors life cycle repair work. Also, in December 2010 the Navy established Navy Regional Maintenance Center headquarters, and began increasing the personnel levels at its intermediate maintenance facilities in June 2011. More recently, in March 2012, the Navy set forth a new strategy in its Surface

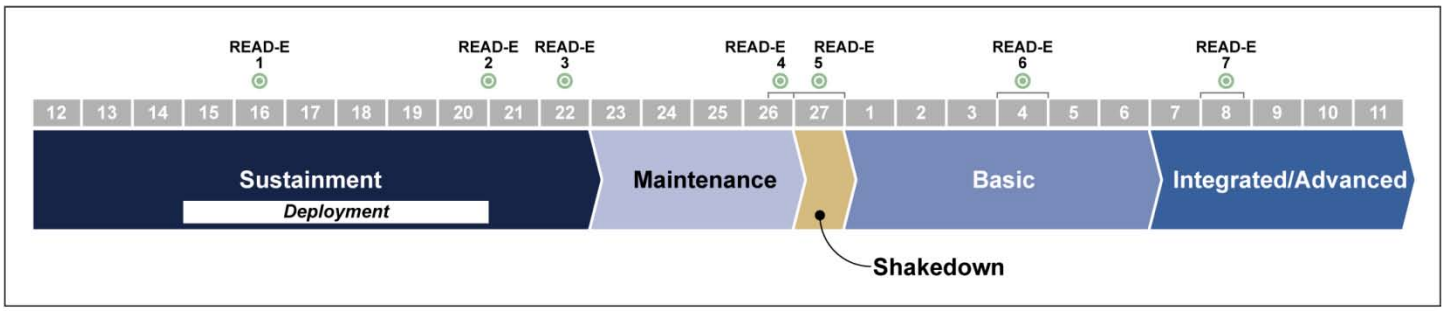
Force Readiness Manual.[11] This strategy is designed to integrate material assessments, evaluations, and inspections with maintenance actions and training and ensure that surface ships are (1) ready to perform their current mission requirements and (2) able to reach their expected service lives.[12] The manual addresses the need for the organizations involved in supporting ship readiness to take an integrated, systematic approach to eliminate redundancy, build training proficiency to deploy at peak readiness, and reduce costs associated with late identified work.

According to the Surface Force Readiness Manual, readiness is based upon a foundation of solid material condition that supports effective training. In line with this integrated maintenance and training approach, the new strategy tailors the 27-month Fleet Response Plan by adding a fifth phase that is not included in the Fleet Response Plan, the shakedown phase. This phase allows time between the end of the maintenance phase and the beginning of the basic phase to conduct a material assessment of the ship to determine if equipment conditions are able to support training. In addition, the new strategy shifts the cycle's starting point from the basic phase to the sustainment phase to support the deliberate planning required to satisfactorily execute the maintenance phase and integrate maintenance and training for effective readiness. Under the new strategy, multiple assessments, which previously certified ship readiness all throughout the Fleet Response Plan cycle, will now be consolidated into seven readiness evaluations at designated points within the cycle. Because each evaluation may have several components, one organization will be designated as the lead and will be responsible for coordinating the evaluation with the ship and other assessment teams, thereby minimizing duplication and gaining efficiencies through synchronization. Figure 3 shows the readiness evaluations that occur within each phase of the strategy's notional 27-month cycle.

[11] Commander, Naval Surface Force U.S. Pacific Fleet/Commander, Naval Surface Force Atlantic Instruction 3502.3, *Surface Force Readiness Manual* (Mar. 9, 2012).

[12] The Surface Force Readiness Manual applies to most surface ships in the fleet. However, aircraft carriers and littoral combat ships are governed by separate instructions.

Figure 3: Notional 27-month Fleet Response Plan Cycle



Source: GAO analysis of Navy data.

As previously noted, development of the Navy's new strategy began with a pilot program. The pilot was conducted on ships from both the East and West coasts beginning in March 2011. Initial implementation of the new strategy began in March 2012 and is currently staggered, with ships' schedules being modified to support the strategy's integration of training, manning, and maintenance efforts.[13] Ships that were not involved in the pilot program will begin implementing the strategy when they complete the maintenance phase of the Fleet Response Plan cycle. The Navy plans to fully implement the new strategy in fiscal year 2015 (i.e. to have all surface ships operating under the strategy and resources needed to conduct the strategy's required tasks in place). While the Surface Force Readiness Manual states that providing a standard, predictable path to readiness is one of the tenets of the Navy's new strategy, it also acknowledges that circumstances may arise that will require a deviation from the notional 27-month cycle.

Navy Has Not Assessed Risks to Implementing its Strategy as Planned or Developed Alternatives

Certain factors could affect the Navy's ability to fully implement its strategy, but the Navy has not assessed the risks to implementation or developed alternatives. As we have previously reported,[14] risk assessment can provide a foundation for effective program management. Risk management is a strategic process to help program managers make

[13] Currently, no ships have applied the strategy throughout an entire 27-month Fleet Response Plan cycle.

[14] GAO, *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1 (Washington, D.C.: November 1999).

decisions about assessing risk, allocating finite resources, and taking actions under conditions of uncertainty. To carry out a comprehensive risk assessment, program managers need to identify program risks from both external and internal sources, estimate the significance of these risks, and decide what steps should be taken to best manage them. Although such an assessment would not assure that program risks are completely eliminated, it would provide reasonable assurance that such risks are being minimized.

As the Navy implements its new surface force readiness strategy one risk we identified involves the tempo of operations. While the strategy acknowledges circumstances may arise that require a deviation from the 27-month Fleet Response Plan cycle, it also states that predictability is necessary in order to synchronize the maintenance, training, and operational requirements. However, the tempo of operations is currently higher than planned for in the Fleet Response Plan. According to Navy officials, this makes execution of the strategy challenging. High operational tempos pose challenges because they could delay the entry of some ships into the strategy as well as the movement of ships through the strategy. For example, some ships that have been operating at increased tempos, such as the Navy's ballistic missile defense cruisers and destroyers, have not followed the Navy's planned 27-month cycle. Navy officials told us that requirements for ballistic missile defense ships are very high leading to quick turnarounds between deployments. They said, in some cases, ships may not have time for the maintenance or full basic and integrated/advanced training phases. The manual notes that ships without an extended maintenance period between deployments will remain in the sustainment phase. According to Navy guidance, the maintenance phase is critical to the success of the Fleet Response Plan since this is the optimal period in which lifecycle maintenance activities—major shipyard or depot-level repairs, upgrades, and modernization installations—occur. Thus, ships with a high operational tempo that do not enter the maintenance phase as planned will have lifecycle maintenance activities deferred, which could lead to increased future costs. Further, ships that do not enter the maintenance phase may be delayed entering into the strategy. This delay would be another risk to the implementation of the Navy's new readiness strategy and ships' lifecycle readiness.

In addition, the Navy's plan to decrease the number of surface combatant and amphibious warfare ships through early retirements is likely to increase operational tempos even further for many ships that remain in the fleet. DOD's fiscal year 2013 budget request proposes the early retirement of seven Aegis cruisers and two amphibious ships in fiscal

years 2013 and 2014. When fewer ships are available to meet a given requirement, ships must deploy more frequently. Table 6 shows the ships that the Navy plans to retire early, their ages at retirement, and their homeports.

Table 6: Navy Ships Planned For Early Retirement

Hull No.	Name	Year to be Retired	Age at Retirement (years)	Homeport
CG 63	Cowpens	FY 13	22	Yokosuka, Japan
CG 68	Anzio	FY 13	21	Norfolk, VA
CG 69	Vicksburg	FY 13	21	Mayport, FL
CG 73	Port Royal	FY 13	19	Pearl Harbor, HI
CG 64	Gettysburg	FY 14	23	Mayport, FL
CG 65	Chosin	FY 14	23	Pearl Harbor, HI
CG 66	Hue City	FY 14	23	Mayport, FL
LSD 41	Whidbey Island	FY 14	29	Norfolk, VA
LSD 46	Tortuga	FY 14	24	Sasebo, Japan

Source: GAO analysis of Navy data.

Legend: FY = Fiscal Year

Also, recent changes in national priorities,[15] which call for an increased focus on the Asia-Pacific region that places a renewed emphasis on air and naval forces, make it unlikely that operational tempos will decline. At the same time, DOD will still maintain its defense commitments to Europe and other allies and partners.

In addition to the risks posed by high operational tempos, several supporting organizations currently have staffing levels that are below the levels needed to fulfill their roles in the new integrated readiness strategy. For example, Navy Afloat Training Group officials have identified the staffing levels required to fully support the strategy, and reported that they need an additional 680 personnel to fully execute the new strategy. As of August 2012, the Navy plans to reflect its funding needs for 410 of the 680 personnel in its fiscal year 2014 budget request and for the remaining 270 in subsequent requests. Under the new strategy, the Afloat Training

[15] Department of Defense, *Sustaining U.S. Global Leadership: Priorities For 21st Century Defense* (Jan. 3, 2012).

Groups provide subject matter experts to conduct both material, and individual and team training. Previously the Afloat Training Groups used a "Train the Trainer" methodology, which did not require the same number of trainers because ships' crews included their own system experts to train the crew and the Afloat Training Groups just trained the ships' trainers. Afloat Training Group Pacific officials told us that there are times when the training events that can be offered—to ships currently under the strategy and/or ships that have not yet implemented the strategy—are limited because of their staffing level gaps. Current staffing allows executing all portions of the Basic Phase in select mission areas only. Other mission areas are expected to gain full training capability as staffing improves over the next several years. Until then, the Afloat Training Group officials plan to schedule training events within the limited capability mission areas based on a prioritized hierarchy.

Further, Surface Maintenance Engineering Planning Program officials told us they are also short of staff. They said they need 241 staff to perform their requirements, but currently have 183 staff. They stated that while current budget plans include funding to reach the 241 staffing level in 2013, it will be reduced below the 241 requirement in 2014.

As with the Afloat Training Groups and Surface Maintenance Engineering Planning Program, officials at the Navy Regional Maintenance Center headquarters told us they currently lack the staff needed to fully execute the ship readiness assessments called for in the new strategy. Ship readiness assessments evaluate both long-term lifecycle maintenance requirements (e.g. preservation to prevent structural corrosion) and maintenance to support current mission requirements (e.g. preventative and corrective maintenance for the Aegis Weapons System). According to the officials, ship readiness assessments allow them to deliberately plan the work to be done during major maintenance periods and prioritize their maintenance funds. The goal is for ships to receive all the prescribed ship readiness assessments in fiscal year 2013. However, Navy officials stated that they are evaluating the impact of recent readiness assessment revisions on changes in the Regional Maintenance Center's funding and personnel requirements.

The Navy has not undertaken a comprehensive assessment of the impact of high operational tempos, staffing shortages, or any other risks it may face in implementing its new readiness strategy, nor has it developed alternatives to mitigate any of these risks. The Navy does recognize in its strategy that circumstances may arise that require ships to deviate from the 27-month Fleet Response Plan cycle and has considered the

adjustments to training that would need to take place in such a case. However, the strategy does not discuss, nor identify plans to mitigate, maintenance challenges that could arise from delays in full implementation. We believe the risks we identified may delay full implementation, which could lead to continued deferrals of lifecycle maintenance, increasing costs and impacting the Navy's ability to achieve expected service lives for its ships.

Conclusions

Today's fleet of surface combatant and amphibious warfare ships provides core capabilities that enable the Navy to fulfill its missions. In order to keep this fleet materially and operationally ready to meet current missions and sustain the force for future requirements, the Navy must maximize the effective use of its resources and ensure that its ships achieve their expected service lives. Full implementation of its new strategy, however, may be delayed if the Navy does not account for the risks it faces and devise plans to mitigate against those risks. Navy organizations have taken individual steps to increase their staffing levels, but the Navy has yet to consider alternatives if the integration of assessment, maintenance, and training under the strategy is delayed. Without an understanding of risks to full implementation and plans to mitigate against them, the Navy is likely to continue to face the challenges it has encountered in the past, including the increased costs that arise from deferring maintenance and the early retirement of ships. This could impact the Navy's ability to meet its long-term commitments. Further, ongoing maintenance deferrals—and early retirements that increase the pace of operations for the remaining surface force—could potentially impact the Navy's ability to meet current missions.

Recommendations for Executive Action

To enhance the Navy's ability to implement its strategy to improve surface force material readiness, we recommend that the Secretary of Defense direct the Secretary of the Navy to take the following two actions:

- Develop a comprehensive assessment of the risks the Navy faces in implementing its Surface Force Readiness Manual strategy, and alternatives to mitigate risks. Specifically, a comprehensive risk assessment should include an assessment of risks such as high operational tempos and availability of personnel.
- Use the results of this assessment to make any necessary adjustments to its implementation plan.

Agency Comments and Our Evaluation

In written comments on a draft of this report, DOD partially concurred with our recommendations. Overall, DOD stated it agrees that risk assessment is an important component of program management, but does not agree that a comprehensive assessment of the risks associated with implementation of the Navy's Surface Force Readiness strategy is either necessary or desirable. It also stated that existing assessment processes are sufficient to enable adjustments to implementation of the strategy. DOD also noted several specific points. For example, according to DOD, a number of factors impact surface ship readiness and some of those factors, such as budgetary decisions, emergent operational requirements, and unexpected major ship repair events are outside of the Navy's direct control. DOD further stated that the strategy, and the organizations that support the strategy, determine and prioritize the full readiness requirement through reviews of ship material condition and assess the risk of any gaps between requirements and execution, as real world events unfold. DOD also noted that the Surface Ship Readiness strategy has a direct input into the annual Planning, Programming, Budgeting, and Execution (PPBE) process. It stated that its position is that execution of the strategy and PPBE process adequately identify and mitigate risks. DOD further believes that a separate one-time comprehensive assessment of risks, over and above established tracking mechanisms, is an unnecessary strain on scarce resources. Moreover, DOD stated that the Navy now has the technical resources available, using a disciplined process, to inform risk-based decisions that optimize the balance between current operational readiness and future readiness tied to expected service life through the standup of its Surface Maintenance Engineering Planning Program and Commander Navy Regional Maintenance Centers. Specifically, DOD noted documenting and managing the maintenance requirement is now a fully integrated process. According to DOD, the Navy's Surface Type Commanders identify and adjudicate risks to service life and this approach is consistent with fundamental process discipline and risk management executed by the submarine and carrier enterprises. Finally, according to DOD, the Navy is continually assessing progress in achieving the strategy and has the requisite tools in place to identify changes in force readiness levels that may result from resource constraints, and will adjust the process as necessary to ensure readiness stays on track.

As described in our report, we recognize that the Navy has taken a more systematic and integrated approach to address its maintenance requirements and mitigate problems, and specifically cite the Surface Readiness strategy, and actions such as standing up Surface Maintenance Engineering Planning Program and Commander Navy

Regional Maintenance Centers. We also recognize that the Navy conducts various assessments of ship readiness and considers resource needs associated with implementing the strategy as part of the budget process. However, we do not agree that any of the current assessments or analyses offer the type of risk assessment that our report recommends. For example, the PPBE process does not address the specific risk that high operational tempos pose to implementation of the strategy nor does it present alternatives for mitigating this risk. Also, despite the ongoing efforts by Surface Maintenance Engineering Planning Program and Commander Navy Regional Maintenance Centers officials to document and manage the maintenance requirement of the surface force in an integrated process, both organizations are currently under staffed. The challenges identified in our report, including high operational tempos and current organizational staffing levels, have hindered the Navy's ability to achieve the desired predictability in ships' operations and maintenance schedules, as called for in its strategy. Given factors such as the Navy's plan to decrease the number of ships as well as changes in national priorities that place a renewed emphasis on naval forces in the Asia Pacific region, these challenges we identified are unlikely to diminish in the near future, and there could be additional risks to the strategy's implementation. Without an understanding of the full range of risks to implementing its strategy and plans to mitigate them, the Navy is likely to continue to face the challenges it has encountered in the past, including increased costs that arise from deferring maintenance and the early retirement of ships. Therefore, we continue to believe that a comprehensive risk assessment is needed.

We are sending copies of this report to appropriate congressional committees, the Secretary of Defense, the Secretary of the navy, and other interested parties. In addition, the report is available at no charge on the GAO website at http://www.gao.gov

If you or your staff have any questions about this report, please contact me at (202) 51209619. Contact points for our Offices of Congressional

Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.

Sharon Pickup
Director
Defense Capabilities and Management

Appendix I: Scope and Methodology

To assess how the Navy evaluates the material readiness of its surface combatant and amphibious warfare ships and the extent to which data indicate trends or patterns in the material readiness of these ships, we interviewed officials from the Commander Naval Surface Force, U.S. Pacific Fleet, Commander Naval Surface Force, U.S. Atlantic Fleet, as well as visiting a number of ships, to include the USS Leyte Gulf (CG 55), USS Arleigh Burke (DDG 51), USS San Antonio (LPD 17), and USS Higgins (DDG-76). We obtained and analyzed Navy policies and procedures for determining surface force readiness, as well as various studies and reports on the Navy's material readiness process. We obtained and analyzed material readiness data from the Navy's Board of Inspection and Survey (INSURV) as well as the United States Fleet Forces Command (USFF). We also met with Navy officials from the Board of Inspection and Survey and the United States Fleet Forces Command to complement our data analysis, and observed the INSURV material inspection of the USS Cole (DDG 67).

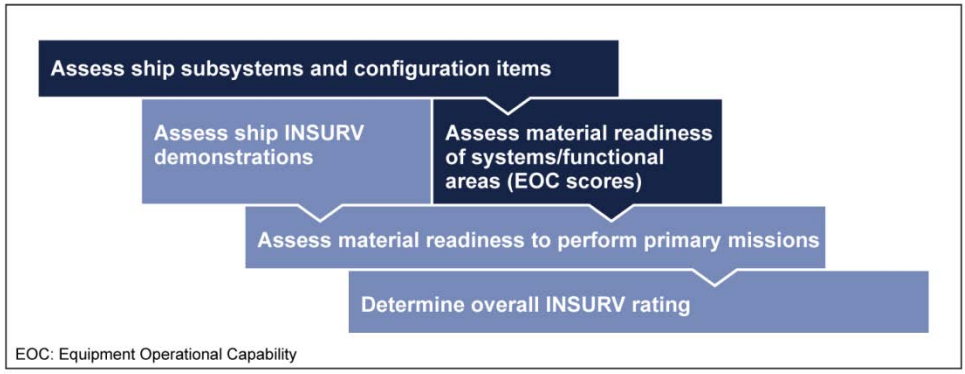
We limited our data analysis to the period from January 2008 to March 2012 in order to cover a period of approximately two years prior to, and two years following, publication of the Fleet Review Panel of Surface Force Readiness report. Specifically, we analyzed data for the Navy's guided-missile cruisers (CG 47 class), guided-missile destroyers (DDG 51 class), frigates (FFG 7 class), amphibious assault ships (LHA 1 and LHD 1 classes), amphibious transport dock ships (LPD 4 and LPD 17 classes), and dock landing ships (LSD 41 and LSD 49 classes).

We analyzed data from three of the primary data sources the Navy uses to provide information on the material condition of ships: casualty reports; Board of Inspection and Survey (INSURV) material inspection reports; and the Defense Readiness Reporting System – Navy (DRRS-N) reports. None of these individual data sources are designed to provide a complete picture of the overall material condition of the surface force.

From the Board of Inspection and Survey we met with INSURV officials and observed an INSURV inspection onboard the USS Cole (DDG 67) conducted on December 12, 2011 and December 14, 2011. We obtained all INSURV initial material inspection reports dating from 2008 through 2012 for cruisers, destroyers, frigates, and amphibious warfare ships. We then extracted relevant data from those reports, including INSURV's overall assessment of the material condition of these surface ships (satisfactory, degraded, unsatisfactory), Equipment Operational Capability scores for the different functional areas of ships systems (on a 0.00 to 1.00 scale), and dates when these ships were inspected. Although

INSURV provides an overall assessment, we included Equipment Operational Capability scores to provide additional insight into the material condition of a ship's systems. Overall assessments focus on a ship's material readiness to perform primary missions. As such, while multiple individual systems may be in an unsatisfactory condition (Equipment Operational Capability scores below 0.80 are considered "degraded," while those below 0.60 are considered "unsatisfactory"), the ship may receive an overall rating of "satisfactory" due to its material readiness to meet its primary missions. Figure 4 below shows the process for determining INSURV ratings, with that segment for determining Equipment Operational Capability scores highlighted.

Figure 4: INSURV Process for Determining Overall Material Inspection Ratings



Source: GAO analysis of Navy data.

We analyzed both INSURV overall ratings and Equipment Operational Capability scores to identify differences in material readiness between types of ships. To determine if there were statistically significant differences in the Equipment Operational Capability scores among four types of ships (cruisers, destroyers, frigates, and amphibious ships), we took the average of the various Equipment Operational Capability scores for each ship and conducted a one-way analysis of variance (ANOVA). In addition, we conducted post-hoc multiple comparison means tests to determine which ship types, if any, differed. Based on the results of this analysis, we concluded that there were statistically significant differences in the average Equipment Operational Capability score between the four ship types (p-value < 0.0001). Specifically, the average for amphibious ships was significantly lower, at the 95 percent confidence level, than the average scores for cruisers, destroyers, and frigates and the average for cruisers was significantly lower than the average for destroyers.

In presenting our results, we standardized relevant data where necessary in order to present a consistent picture. For example, in 2010, the Board of Inspection and Survey moved from rating those ships with the worst material condition as "unfit for sustained combat operations" to rating them as "unsatisfactory." We have treated both these ratings as "unsatisfactory" in this report.

We obtained casualty report data for the same set of ships from the United States Fleet Forces Command office responsible for the Navy's Maintenance Figure of Merit program. Casualty report data provided average daily numbers of casualty reports per ship for cruisers, destroyers, frigates, and amphibious warfare ships. We then used these daily averages to identify differences between ship types and to calculate and analyze changes in these daily averages from month to month and quarter to quarter.

We assessed the reliability of casualty report data presented in this report. Specifically, the Navy provided information based on data reliability assessment questions we provided, which included information on an overview of the data, data collection processes and procedures, data quality controls, and overall perceptions of data quality. We received documentation about how the systems are structured and written procedures in place to ensure that the appropriate material readiness information is collected and properly categorized. Additionally, we interviewed the Navy officials to obtain further clarification on data reliability and to discuss how the data were collected and reported into the system. After assessing the data, we determined that the data were sufficiently reliable for the purposes of assessing the material condition of Navy surface combatant and amphibious warfare ships, and we discuss our findings in the report.

To determine if there were statistically significant differences in the daily averages among the four types of ships (cruisers, destroyers, frigates, and amphibious warfare ships), we conducted a one-way analysis of variance (ANOVA), followed by post-hoc multiple comparison means tests to determine which ship types, if any, differed. Based on the results of this analysis we concluded that there were statistically significant differences in the daily averages between the four ship types (p-value < 0.0001), and specifically, the daily average for amphibious warfare ships was significantly higher, at the 95 percent confidence level, than the daily average for cruisers, destroyers, and frigates.

Next we analyzed the changes in the daily averages to determine if there was an increasing, decreasing, or stationary trend from month to month. We did this separately for surface combatant ships (cruisers, destroyers, and frigates) and amphibious warfare ships. To estimate the trends, we conducted a time-series regression analysis to account for the correlation in the average daily scores from month to month. We then tested the estimated trends for significant changes after February 2010 — when the Fleet Review Panel's findings were published – using the Chow test for structural changes in the estimated parameters. We fit a time-series regression model with autoregressive errors (AR lag of 1) to monthly data for both surface combatants and amphibious ships to account for the autocorrelation between monthly observations. The total R-squared, a measure that reflects how well the model predicts the data, was 0.9641 for the surface combatant ships model and 0.9086 for the amphibious warfare ships model which indicate both models fit the data well. A summary of the model parameters is given in the table below.

Table 7: Summary of Regression Model Parameters

Model:	Model: Total R-Squared	Model: Regression R-Squared	Parameter	Estimate	p-value
Surface Combatants	0.9641	0.6063	Intercept	9.8221	<0.0001
			Month (trend)	0.1770	<0.0001
Amphibious Ships	0.9086	0.4013	Intercept	16.1106	<0.0001
			Month (trend)	0.2438	<0.0001

Source: GAO analysis of Navy data.

We observed statistically significant positive trends in the daily average for both models. Specifically, the estimated trend for the daily average number of casualty reports per ship increased at a rate of about 2 per year (0.1770 * 12 months) for surface combatant ships and about 3 per year (0.2438 * 12 months) for amphibious warfare ships. In addition, neither of the tests for significant structural changes in the model parameters after February 2010 were significant at the 95 percent confidence level. Based on this, we concluded that there is not enough evidence to suggest there were significant changes in the estimated trends after February 2010 for either ship type.

We analyzed data from the Defense Readiness Reporting System-Navy (DRRS-N), which contains data that is normally reported monthly and focuses on current readiness by presenting information on broader capability and resource areas. We obtained classified DRRS-N readiness

data for all surface combatant and amphibious warfare ships from January 2008 through March 2012. DRRS-N data showed upward and downward movements between 2008 and 2012, but we did not evaluate the statistical significance of these movements.

To determine the extent to which the Navy has taken steps intended to improve the readiness of its surface combatant and amphibious warfare ships including efforts to implement its recent strategy, we reviewed relevant Navy instructions on Navy material readiness, including the strategy—the Surface Force Readiness Manual—to identify the policies and procedures required by the Navy to ensure its surface ships are ready to perform their current mission requirements and reach their expected service lives. We also reviewed prior GAO work on risk management and collected and analyzed data on the resources needed to implement the strategy, and interviewed relevant officials.

To gain a better understanding of how the Navy's independent maintenance, training, and manning initiatives will be integrated into the new strategy, we collected data on the staffing resources needed to implement the strategy and met with officials from the Commander Navy Regional Maintenance Center, the Surface Maintenance Engineering Planning Program, and the Afloat Training Group Pacific. We focused primarily on the Navy's maintenance initiatives because we have previously reported on its training and manning initiatives. [1]

In addition, we met with personnel on board four Navy ships to obtain their views on the impact of the Navy's maintenance initiatives, such as readiness assessments and material inspections, on the readiness of these ships. Specifically, we visited the USS Leyte Gulf (CG 55), USS Arleigh Burke (DDG 51), USS San Antonio (LPD 17), and USS Higgins (DDG 76). We also discussed initial implementation of the new strategy with personnel on board the USS Higgins.

We also met with officials from the Commander Naval Surface Force, U.S. Pacific Fleet who are responsible for administering the strategy for

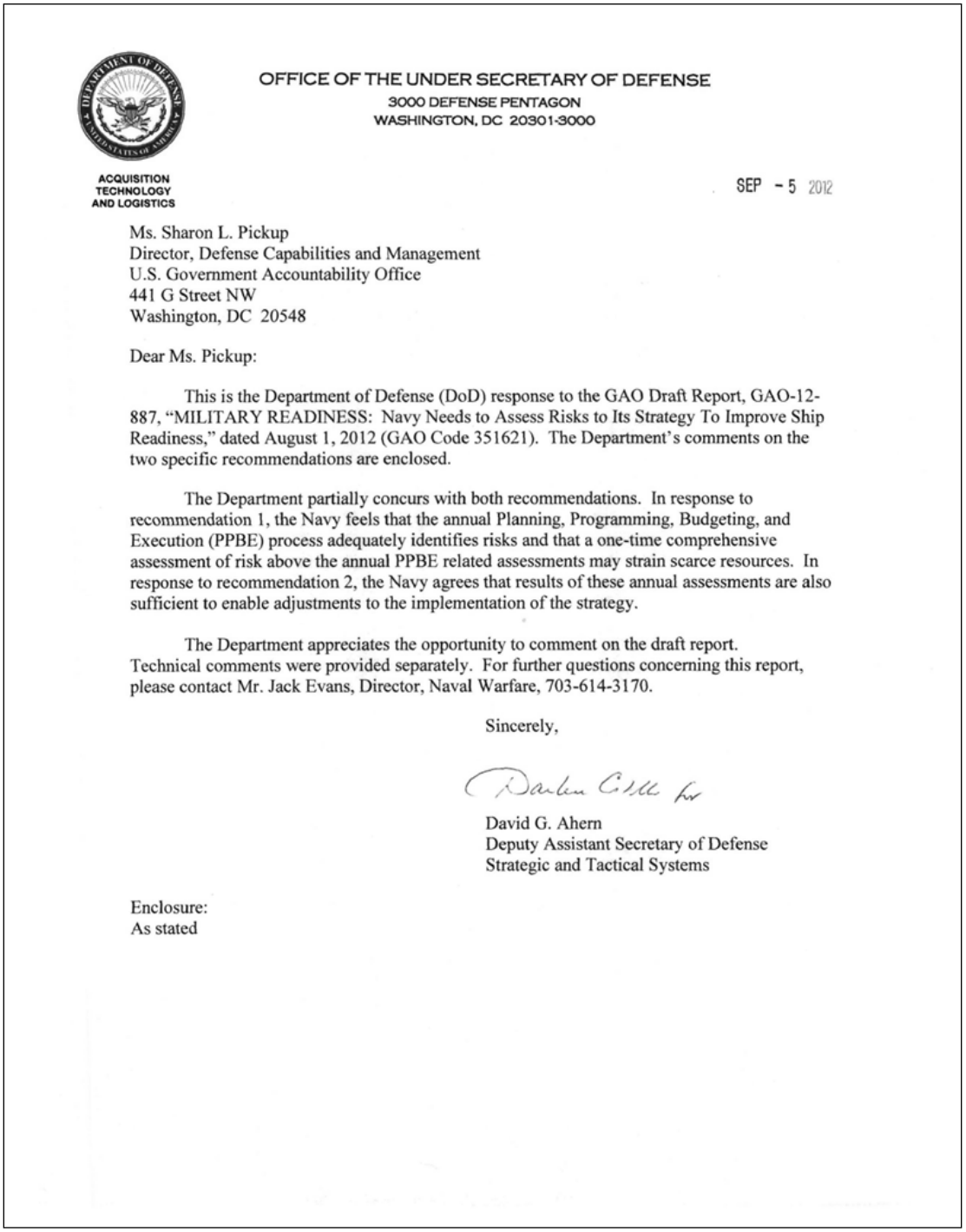
[1] Footnote numbers start over at "1" in appendices. GAO, *Military Readiness: Navy's Report to Congress on the Impact of Training and Crew Size on Surface Force Material Readiness*, GAO-11-746R (Washington, D.C.: July 7, 2011) and *Military Readiness: Navy Needs to Reassess Its Metrics and Assumptions for Ship Crewing Requirements and Training*, GAO-10-592 (Washington, D.C.: June 9, 2010).

surface ships on the West coast and in Hawaii and Japan to discuss timeframes for transitioning ships into the strategy, challenges implementing the strategy, and plans to address any risks that may occur during the strategy's implementation. Additionally, we obtained written responses to our questions from these officials and from officials at the Commander Naval Surface Force, U.S. Atlantic Fleet who administer the strategy for surface ships on the East coast.

Finally, we reviewed prior GAO work on risk assessment as well as Navy testimony on the readiness of its ships and aircraft and Department of Defense strategic guidance on the key military missions the department will prepare for and budget priorities for fiscal years 2013-2017.

We conducted this performance audit from July 2011 to September 2012, 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.

Appendix II: Comments from the Department of Defense



OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

ACQUISITION
TECHNOLOGY
AND LOGISTICS

SEP - 5 2012

Ms. Sharon L. Pickup
Director, Defense Capabilities and Management
U.S. Government Accountability Office
441 G Street NW
Washington, DC 20548

Dear Ms. Pickup:

This is the Department of Defense (DoD) response to the GAO Draft Report, GAO-12-887, "MILITARY READINESS: Navy Needs to Assess Risks to Its Strategy To Improve Ship Readiness," dated August 1, 2012 (GAO Code 351621). The Department's comments on the two specific recommendations are enclosed.

The Department partially concurs with both recommendations. In response to recommendation 1, the Navy feels that the annual Planning, Programming, Budgeting, and Execution (PPBE) process adequately identifies risks and that a one-time comprehensive assessment of risk above the annual PPBE related assessments may strain scarce resources. In response to recommendation 2, the Navy agrees that results of these annual assessments are also sufficient to enable adjustments to the implementation of the strategy.

The Department appreciates the opportunity to comment on the draft report. Technical comments were provided separately. For further questions concerning this report, please contact Mr. Jack Evans, Director, Naval Warfare, 703-614-3170.

Sincerely,

David G. Ahern
Deputy Assistant Secretary of Defense
Strategic and Tactical Systems

Enclosure:
As stated

GAO DRAFT REPORT DATED AUGUST 1, 2012
GAO-12-887 (GAO CODE 351621)

"NAVY NEEDS TO ASSESS RISKS TO ITS STRATEGY TO IMPROVE SHIP READINESS"

DEPARTMENT OF DEFENSE COMMENTS TO THE GAO RECOMMENDATIONS

RECOMMENDATION 1: GAO recommends that the Secretary of Defense direct the Secretary of the Navy to develop a comprehensive assessment of the risks the Navy faces in implementing its Surface Force Readiness Manual strategy, and alternatives to mitigate risks. Specifically a comprehensive risk assessment should include an assessment of risks such as high operational tempos and availability of personnel.

DoD RESPONSE: Partially Concur. The Department agrees that risk assessment is an important component of program management but does not agree that a comprehensive assessment of the risks associated with implementation of the Navy's Surface Force Readiness strategy is either necessary or desirable.

A tremendous number of factors impact Surface Ship readiness. Some of those factors, such as budgetary decisions, emergent operational requirements, and unexpected major ship repair events, such as fire, flooding, or collisions, are outside of the Navy's direct control. However, the Navy's Surface Ship readiness strategy, and the organizations that support that strategy, determine and prioritize the full readiness requirement through in-depth review of each ship's material condition and assess the risk of any gaps between that requirement and execution, as real world events unfold.

The Surface Ship readiness strategy has a direct input into the annual Planning, Programming, Budgeting, and Execution (PPBE) process. The Department's position is that execution of the Surface Ship readiness strategy and the PPBE process adequately identify and mitigate risks to the Surface Force. A separate one-time comprehensive assessment of risks, over and above established tracking mechanisms is an unnecessary strain on scarce resources.

With the stand-up of Surface Maintenance Engineering Planning Program (SURFMEPP) and Commander Navy Regional Maintenance Centers (CNRMC), the surface Navy now has the technical resources available, using a disciplined process, to inform risk-based decisions that optimize the balance between current operational readiness and future readiness tied to expected service life. Documenting and managing the maintenance requirement is now a fully integrated process at SURFMEPP and CNRMC. Risks to service life are identified and adjudicated with each Surface Type Commander. This approach is consistent with fundamental process discipline and risk management executed by the submarine and carrier enterprises.

Navy leadership has managed the risks associated with the generation and implementation of the Surface Force Readiness Strategy. Navy is continually assessing our progress in achieving that strategy, and we have the requisite tools in place to identify changes in Force readiness levels that may result from resource constraints, and will adjust/modify our process as necessary to ensure Force readiness stays on track.

For reference purposes this recommendation will be identified as item GAO-12-887-01.

RECOMMENDATION 2: GAO recommends that the Secretary of Defense direct the Secretary of the Navy to use the results of this assessment to make any necessary adjustments to its implementation plan.

DoD RESPONSE: Partially Concur. The Department believes that the existing assessment processes are sufficient to enable the Navy to make necessary adjustments to the implementation of the strategy.

For reference purposes, this recommendation will be identified as GAO-12-887-02.

Appendix III: GAO Contacts and Staff Acknowledgments

GAO Contacts

Sharon L. Pickup, (202) 512-9619 or pickups@gao.gov

Staff Acknowledgments

In addition to the contact named above, key contributors to this report were Michael Ferren (Assistant Director), Jim Ashley, Mary Jo Lacasse, David Rodriguez, Michael Silver, Amie Steele, Nicole Volchko, Erik Wilkins-McKee, Nicole Willems, and Ed Yuen.