



April 2024

# COAST GUARD

## Aircraft Fleet and Aviation Workforce Assessments Needed

# GAO Highlights

Highlights of [GAO-24-106374](#), a report to congressional committees

## Why GAO Did This Study

The Coast Guard, a multi-mission military service within the Department of Homeland Security, is responsible for protecting and defending more than 100,000 miles of U.S. coastline and inland waterways. It relies heavily on its fleet of about 200 aircraft to do so.

Several of the Coast Guard's aircraft are approaching the end of their original service lives. The Coast Guard is amid a multibillion-dollar acquisition effort to modernize its aircraft fleet. It has also reported challenges maintaining a sufficient workforce to meet its growing mission demands.

The James N. Inhofe National Defense Authorization Act for Fiscal Year 2023 includes a provision for GAO to review issues related to Coast Guard aircraft availability. This report examines, among other things, (1) the extent Coast Guard aircraft met operational availability targets, (2) Coast Guard efforts to modernize its aircraft fleet, and (3) the extent it has determined its aviation-related workforce needs.

GAO analyzed Coast Guard documentation and data on aircraft availability, acquisitions, and aviation workforce. GAO also interviewed Coast Guard officials, including those representing eight of 25 air stations with a mix of aircraft and geographic locations.

## What GAO Recommends

GAO is making five recommendations, including that the Coast Guard assess the type and number of helicopters, and aviation workforce size, needed to meet mission demands. The Department of Homeland Security concurred with these recommendations.

View [GAO-24-106374](#). For more information, contact Heather MacLeod at (202) 512-8777 or [macleodh@gao.gov](mailto:macleodh@gao.gov).

April 2024

## COAST GUARD

### Aircraft Fleet and Aviation Workforce Assessments Needed

#### What GAO Found

The U.S. Coast Guard relies on its aircraft to support its many missions, using them most heavily for search and rescue. However, its aircraft generally did not meet the Coast Guard's 71 percent availability target during fiscal years 2018 through 2022. Specifically, the aircraft fleet availability ranged from 66 percent to 68 percent during this timeframe. The Coast Guard set this target to help ensure a high probability that its air stations can deploy at least one aircraft on short notice for search and rescue. Coast Guard officials attributed the aircraft fleet generally not meeting availability targets to maintenance and repair challenges.

#### Coast Guard Aircraft



Source: U.S. Coast Guard photos. | GAO-24-106374

As of January 2024, the Coast Guard had four programs underway to modernize its aircraft and help ensure they are available for operations in the coming decades, at an estimated cost of \$105.6 billion. These programs were generally meeting their approved cost and schedule baselines. One of these programs aims to consolidate the fleet from 98 short-range and 48 medium-range helicopters to an all medium-range helicopter fleet. This would reduce the fleet size from 146 to at least 127 total helicopters.

However, the Coast Guard has not fully assessed whether this transition will result in the type and quantity of helicopters needed to meet its mission demands. For example, it has not conducted an analysis of alternatives—an analytical study comparing the operational effectiveness, costs, and risks—to determine the best suited aircraft to meet mission needs. Assessing different helicopters using such an analysis would help the Coast Guard determine the best alternative to replace its short-range helicopter. Additionally, a fleet mix analysis would help ensure it identifies the necessary number of helicopters it requires to meet its mission demands.

As of July 2023, the Coast Guard had 387 of 4,134 (9 percent) of its authorized military aviation workforce positions vacant. However, the Coast Guard has not fully determined its aviation workforce needs. Coast Guard guidance calls for the Coast Guard to assess and determine necessary staffing levels and skills to meet mission needs. This may be higher or lower than the number of its authorized positions. The Coast Guard has not used this process for a large portion of its aviation workforce, including all 25 of its air stations and its major aircraft repair facility. Until such analysis is completed, the Coast Guard will not fully understand the resources it requires for its aviation units.

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### **Abbreviations**

DHS	Department of Homeland Security
HITRON	Helicopter Interdiction Tactical Squadron
MRD	Manpower Requirements Determination

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April 9, 2024

The Honorable Maria Cantwell  
Chair  
The Honorable Ted Cruz  
Ranking Member  
Committee on Commerce, Science, and Transportation  
United States Senate

The Honorable Sam Graves  
Chair  
The Honorable Rick Larsen  
Ranking Member  
Committee on Transportation and Infrastructure  
House of Representatives

The U.S. Coast Guard (Coast Guard), a multi-mission maritime military service within the Department of Homeland Security (DHS), is responsible for protecting and defending more than 100,000 miles of U.S. coastline and inland waterways. It serves as a first responder and humanitarian service that provides aid to people in distress or affected by natural and human-made disasters whether at sea or on shore. It is the principal federal agency for a varied mix of missions, including search and rescue and maritime drug and migrant interdiction.<sup>1</sup> To meet its mission demands, it operates about 200 fixed-wing aircraft and rotary-wing aircraft (helicopters), along with its fleet of cutters and boats.<sup>2</sup>

However, several of the Coast Guard's aircraft are either approaching or have exceeded the end of their original service lives, with many having entered service in the 1980s and 1990s.<sup>3</sup> Consequently, the Coast Guard is amid a multibillion-dollar effort to modernize its aircraft fleet by

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<sup>1</sup>The Coast Guard's 11 statutory missions outlined in the Homeland Security Act of 2002 are as follows: marine safety; search and rescue; marine environmental protection; ports, waterways, and coastal security; drug interdiction; migrant interdiction; living marine resources; other law enforcement; aids to navigation; ice operations; and defense readiness. Pub. L. No. 107-296, title VIII, subtitle H, § 888, 116 Stat. 2135, 2249 (classified at 6 U.S.C. § 468(a)).

<sup>2</sup>A cutter is any vessel 65 feet in length or greater with adequate accommodations for crew to live on board.

<sup>3</sup>Original service life is the amount of time an aircraft is expected to operate based on contractual design requirements.

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upgrading existing aircraft with new technology capability and acquiring new replacement aircraft. In doing so, it faces the challenge of managing its limited resources to ensure it has the necessary aircraft available to meet its varied mission demands.

Moreover, in recent years, the Coast Guard, like other U.S. military services, has reported challenges in maintaining a sufficient workforce to meet growing mission demands. In particular, the Coast Guard has expressed concerns about its ability to retain its pilots as many have left the service for positions in the commercial aviation industry.

The James N. Inhofe National Defense Authorization Act for Fiscal Year 2023 includes a provision for us to study the operational availability of Coast Guard aircraft.<sup>4</sup> This report examines (1) the extent Coast Guard aircraft met operational availability targets during fiscal years 2018 through 2022, (2) the extent the Coast Guard assessed its air station readiness during this time, (3) the status of the Coast Guard's efforts to modernize its aircraft fleet, and (4) the extent the Coast Guard has filled its aviation workforce positions and determined its aviation-related workforce needs.

To address these objectives, we conducted site visits to eight of the 25 Coast Guard air stations<sup>5</sup> to interview officials about aircraft availability and modernization for the Coast Guard's five types of aircraft.<sup>6</sup> We selected these eight air stations to represent a mix of the five types of

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<sup>4</sup>Division K (Don Young Coast Guard Authorization Act of 2022) of the James M. Inhofe National Defense Authorization Act for Fiscal Year 2023, Pub. L. No. 117-263, div. K, title CXII, subtitle E, § 11233, 136 Stat. 2395, 4033-34 (2022). Within 1 year of enactment, we are to commence a study assessing various elements, including challenges the Coast Guard may face in meeting its aircraft operational availability targets, among other things. Within 180 days of completion of our study, the Coast Guard shall develop a comprehensive aviation strategy that is informed by the relevant recommendations and findings of such study, including an analysis of the potential need for a second rotary-wing airframe to carry out its cutter-based operations and National Capital Region air interdiction mission. See id. § 11233(b), 136 Stat. at 4033-34.

<sup>5</sup>A Coast Guard air station is a unit where personnel operate aircraft and support flight operations. The eight Coast Guard air stations we interviewed officials from are Elizabeth City, NC; New Orleans, LA; Mobile, AL; Kodiak, AK; Barbers Point, HI; Atlantic City, NJ; Sacramento, CA; and Clearwater, FL.

<sup>6</sup>In addition to these five types of aircraft, which we describe later in this report, the Coast Guard operates two C-37 jets for transportation of senior officials. We did not include these aircraft in our review because the Coast Guard does not use them for general operations. We also did not include the Coast Guard's unmanned aerial systems, which the service operates from its National Security Cutters.

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Coast Guard aircraft it operates at air stations, as well as geographic location. The information we gathered from these site visits is not generalizable to all 25 Coast Guard air stations but provided important context about the aircraft availability and air station readiness. We also interviewed Coast Guard headquarters officials from its Office of Aviation Forces and Office of Aeronautical Engineering. We interviewed Coast Guard field officials from Coast Guard's Aviation Logistics Center, its main aircraft maintenance facility, about aircraft availability, maintenance, and acquisition efforts. We also interviewed officials from each of the Coast Guard's two area commands, Atlantic and Pacific, about various aspects of aircraft operations, modernization efforts, and workforce needs.

To address the first and second objectives, we analyzed Coast Guard aircraft availability and air station readiness data from the Coast Guard's Asset Logistics Management Information System for fiscal years 2018 through 2022—the most recent data available for our review.<sup>7</sup> We interviewed relevant agency officials, reviewed related documentation, and assessed the data for missing data and obvious errors in accuracy and completeness to determine the reliability of these data. Based on these steps, we determined these data to be sufficiently reliable for the purposes of presenting data on aircraft availability—whether aircraft are available to perform missions—over time. However, we found data on air station readiness—whether air stations with search and rescue responsibilities have an aircraft prepared to take off within 30 minutes—to be not sufficiently reliable for our purposes, and we discuss this later in our report.

We also reviewed Coast Guard guidance, instructions, and manuals on aircraft availability metrics and air station readiness requirements, such as the Coast Guard's *Aeronautical Engineering Maintenance Management Manual*.<sup>8</sup> We compared information we obtained regarding Coast Guard's process for collecting and tracking air station readiness against the Coast Guard's *Framework for Strategic Mission Management*, *Enterprise Risk Stewardship*, and *Internal Control and Standards for*

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<sup>7</sup>The Coast Guard's Asset Logistics Management Information System provides maintenance tracking, parts inventory, and mission information for Coast Guard aircraft. According to Coast Guard guidance, this system records the percentage of time each aircraft is capable of conducting missions.

<sup>8</sup>Coast Guard, *Aeronautical Engineering Maintenance Management Manual* (COMDTINST M13020.1H), (Washington, D.C.: May 2019).



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*Internal Control in the Federal Government* related to using quality information.<sup>9</sup>

To address the third objective, we analyzed key aircraft acquisition documentation, such as acquisition program baselines and lifecycle cost estimates, for each of the Coast Guard's four programs to acquire and upgrade its five aircraft types.<sup>10</sup> We interviewed headquarters officials responsible for the four programs and reviewed information on the status of the programs as of January 2024. We compared information on Coast Guard plans to modernize its helicopter fleet against Coast Guard guidance, including its *Framework for Strategic Mission Management, Enterprise Risk Stewardship, and Internal Control*.

To address the fourth objective, we analyzed Coast Guard data on its aviation personnel, as of July 2023, the most recent data available at the time of our review. To assess the reliability of the data, we interviewed relevant agency officials about their practices for maintaining the data, reviewed related documentation, and assessed the data for missing data and obvious errors in accuracy and completeness. We determined that the data were sufficiently reliable for the purpose of reporting the status of Coast Guard aviation positions (filled or vacant).

We also analyzed the Coast Guard's policy and procedures for conducting its Manpower Requirements Determinations (MRD) process, which are workforce assessments the Coast Guard uses to determine the number of personnel required for each unit. Documentation we analyzed included the Coast Guard's *Manpower Requirements Manual* and its most recently issued *Manpower Requirements Plan*.<sup>11</sup> We reviewed Coast Guard documentation on its completion of the MRD process for aviation units. We also interviewed Coast Guard headquarters officials

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<sup>9</sup>U.S. Coast Guard Deputy Commandant for Operations, *Framework for Strategic Mission Management, Enterprise Risk Stewardship, and Internal Control* (Washington, D.C.: July 2020); GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: Sept. 2014).

<sup>10</sup>The Coast Guard has four major acquisition programs to modernize its aircraft through the purchase of new aircraft, upgrades to existing mission systems, including sensors, communication and surveillance equipment, and modifications to extend the aircraft's service life. The Coast Guard's four aircraft modernization programs are the Short-Range Recovery Helicopter Sustainment (MH-65E), Medium-Range Recovery Helicopter Sustainment (MH-60T), Medium-Range Surveillance Aircraft (HC-144B/HC-27J), and Long-Range Surveillance Aircraft (HC-130J).

<sup>11</sup>Coast Guard, *Coast Guard Manpower Requirements Manual*, (Nov. 2020). Coast Guard, *Manpower Requirements Plan*, (Mar. 2023).

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from its human resources office and field officials from its Aviation Technical Training Center and its Aviation Training Center about its training and workforce challenges for the aviation workforce. We evaluated Coast Guard actions to assess aviation workforce needs against Coast Guard policy and procedures for conducting workforce assessments, including its MRD process.

We conducted this performance audit from December 2022 to April 2024 in accordance with generally accepted government auditing standards. These 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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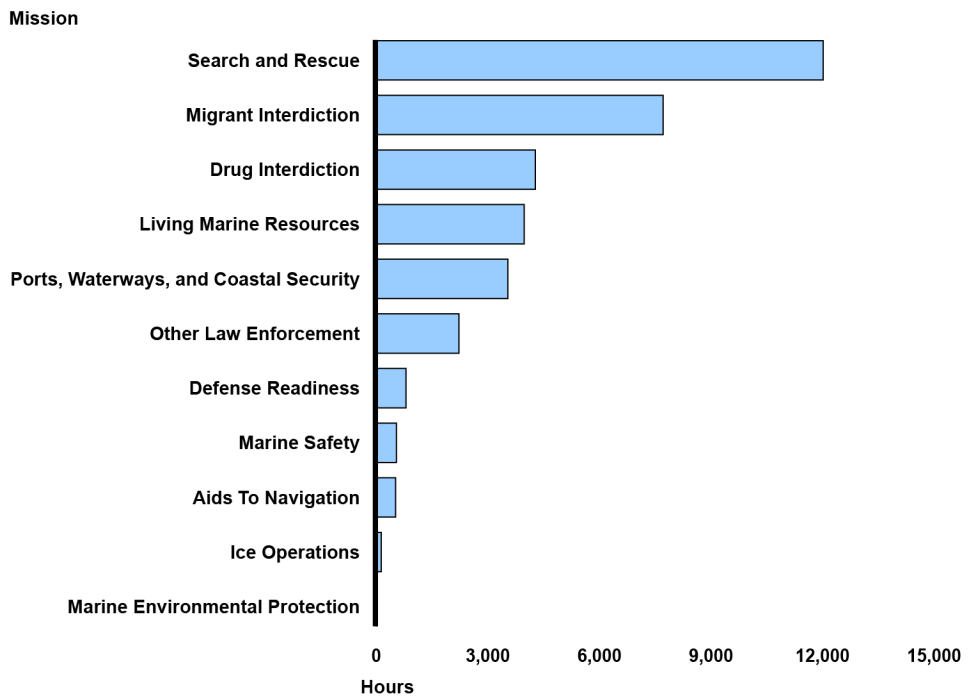
## Background

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### Aircraft Fleet

The Coast Guard relies on its aircraft to support its missions, to varying degrees. For example, during fiscal years 2018 through 2022, the Coast Guard deployed its aircraft most heavily for three of its 11 missions—search and rescue, migrant interdiction, and drug interdiction. See figure 1 for the hours the Coast Guard deployed its aircraft across its missions during fiscal year 2022.

**Figure 1: Coast Guard Aircraft Resource Hours by Mission, Fiscal Year 2022**



Source: GAO analysis of U.S. Coast Guard data. | GAO-24-106374

According to the Coast Guard, its aircraft are critical for the timely response to search and rescue and drug interdiction success. For search and rescue, aircraft speed enables the Coast Guard to quickly reach targets, hoist people from the water or sinking vessels, or drop supplies or equipment (such as radios, life rafts, and water pumps). Aircraft can also respond to inland areas in shallow waters that boats cannot reach, as well as to locations far offshore because of their speed to the search area.

For drug interdiction, the Coast Guard deploys surveillance aircraft—generally its long-range surveillance aircraft (HC-130H/J)—to detect and monitor drug smuggling activity. In addition, the Coast Guard’s Helicopter Interdiction Tactical Squadron (HITRON) uses short range (MH-65D/E) helicopters to conduct patrols and pursuit actions using aircrew who are trained to shoot out and disable the engines of fleeing drug smuggling vessels.<sup>12</sup> HITRON deploys aboard cutters in support of counter drug

<sup>12</sup>According to the Coast Guard, HITRON provides personnel, training, and resources necessary to employ armed helicopters in support of counter drug operations.

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operations far offshore.<sup>13</sup> See figure 2 for examples of Coast Guard aircraft conducting operations for its different missions.

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<sup>13</sup>Cutters perform a wide variety of missions in offshore waters. Some Coast Guard cutters are capable of deploying with helicopters for various missions, such as drug and migrant interdiction. The MH-65D/E is the primary Coast Guard aircraft used aboard cutters during deployments.

**Figure 2: Coast Guard Aircraft Conducting Migrant Interdiction, Search and Rescue, and Aids to Navigation Missions**



Source: U.S. Coast Guard photos by (clockwise from left) CPO David Young, courtesy photo, PO1 Justin Munk, CPO Matthew S. Masaschi. | GAO-24-106374

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As of December 2023, the Coast Guard operated a fleet of almost 200 aircraft—146 helicopters and 47 fixed-wing aircraft.<sup>14</sup> The helicopter fleet is composed of the short-range (MH-65D/E) and the larger medium-range (MH-60T) recovery aircraft, with the short-range accounting for about two-thirds of its helicopter fleet. Its fixed-wing fleet is composed of medium-range (HC-144A/B and HC-27J) surveillance aircraft and the long-range (HC-130H/J) surveillance aircraft.<sup>15</sup> See figure 3.

Three of the Coast Guard's five aircraft types are approaching or have exceeded the end of their original service lives. Specifically, both of the Coast Guard's helicopter types started reaching the end of their original service lives in fiscal year 2021, and one of its medium-range surveillance aircraft types will reach the end of its original service life in fiscal year 2028. To address this, the Coast Guard is implementing acquisition programs to purchase new aircraft, extend the aircrafts' original service lives, and add new capabilities to its current fleet.<sup>16</sup>

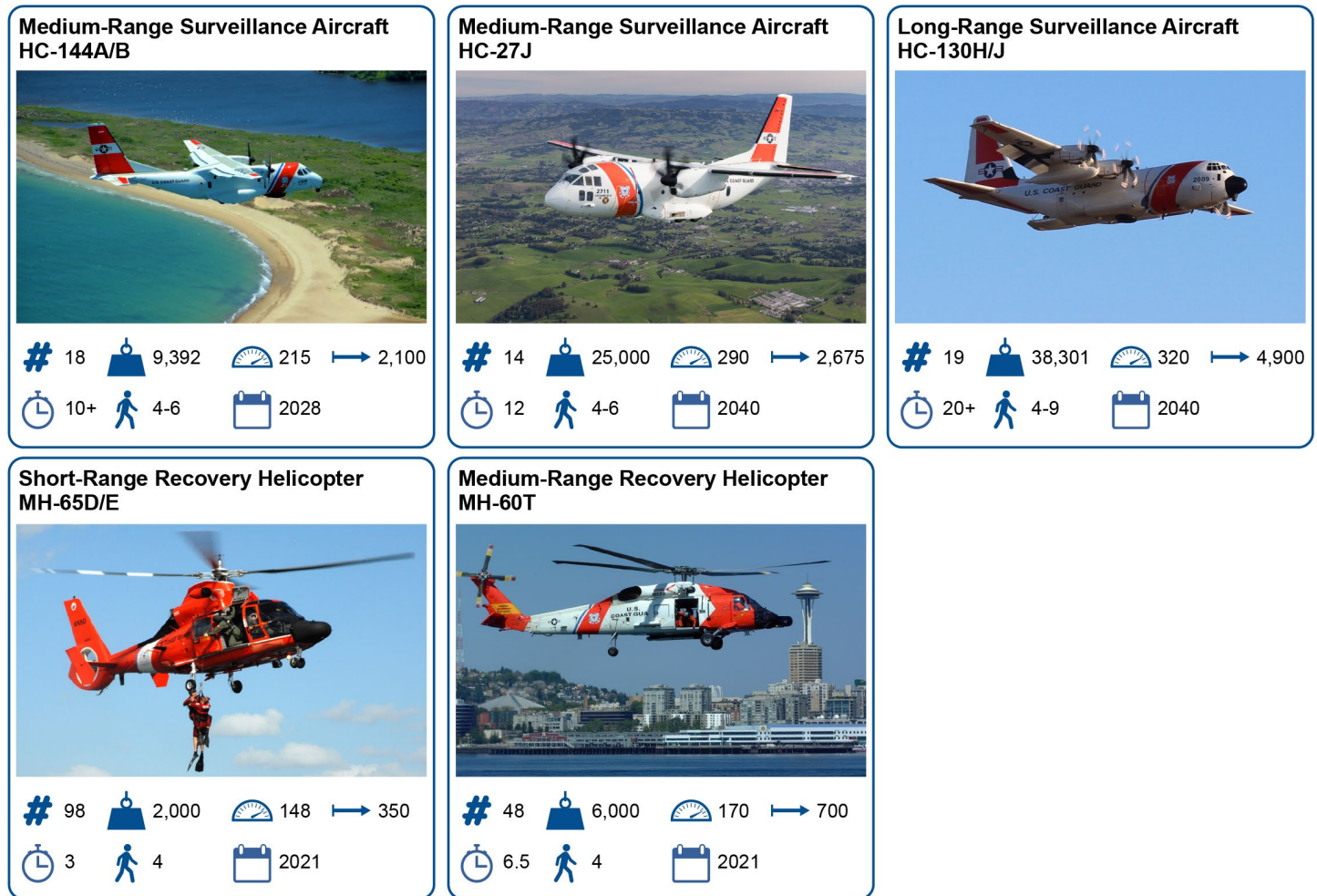
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<sup>14</sup>In addition, the Coast Guard operates two C-37 jet aircraft that it uses for transporting senior officials. According to the Coast Guard, these aircraft provide DHS and Coast Guard senior officials the ability to carry out continued DHS operations while traveling worldwide.

<sup>15</sup>In December 2023, the medium-range surveillance aircraft (HC-27J) manufacturer issued a notice about structural issues with the aircraft. According to Coast Guard officials, all 14 HC-27J aircraft had cracks in the structure, and the Coast Guard grounded the fleet. According to officials, the Coast Guard worked with the manufacturer to implement a solution and in January 2024 lifted the fleet-wide grounding, with restrictions until fully repaired.

<sup>16</sup>The Coast Guard has four major acquisition programs underway to modernize its aircraft fleet through the purchase of new aircraft, upgrades to existing systems, and modifications to extend the aircraft's service life. The Coast Guard's four aircraft modernization programs are the Short-Range Recovery Helicopter Sustainment (MH-65E), Medium-Range Recovery Helicopter Sustainment (MH-60T), Medium-Range Surveillance Aircraft (HC-144B/HC-27J), and the Long-Range Surveillance Aircraft (HC-130J).

Figure 3: Coast Guard Aircraft Fleet as of December 2023



**Legend**

- # Quantity
- 🚢 Hoist or payload capacity (pounds)
- 🕒 Cruise speed (knots)
- ➡ Range (nautical miles)
- 🕒 Endurance (hours)
- 👤 Crew
- 📅 Estimated reach of end of service life

Source: GAO analysis of U.S. Coast Guard documentation; GAO (illustrations); Photos (clockwise from top left) U.S. Coast Guard photos by Aux. Michael Dubiin, Lt. Scott Handlin, Annie Bowers, PA3 Adam Eggers, PA2 James Judge. | GAO-24-106374

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## Air Stations and Facilities

The Coast Guard operates its aircraft from 25 air stations across the United States. Air stations are Coast Guard units where personnel operate aircraft and support flight operations. These air stations each report to one of nine districts.<sup>17</sup>

In addition to its air stations, the Coast Guard operates three facilities responsible for maintaining aircraft and training aviation personnel. Specifically, the Coast Guard's Aviation Logistics Center, in Elizabeth City, North Carolina, supports aviation operations by performing depot-level aircraft maintenance, managing procurement of aircraft parts, and supporting aircraft acquisition projects.<sup>18</sup> The Coast Guard's Aviation Training Center, in Mobile, Alabama, and Aviation Technical Training Center, in Elizabeth City, North Carolina, trains pilots and maintainers, respectively. See figure 4.

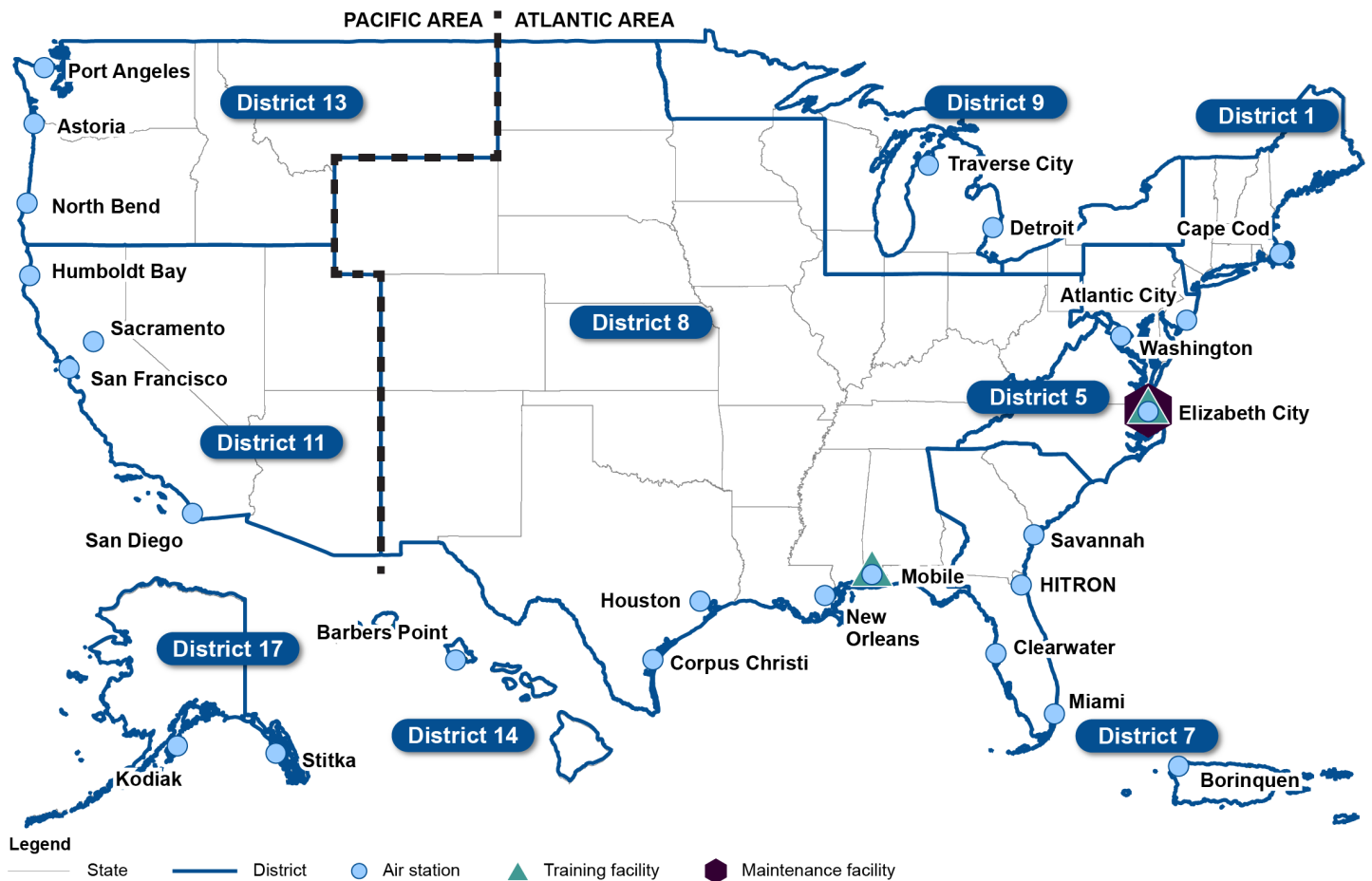
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<sup>17</sup>Coast Guard districts are responsible for regional operations and execute operations and missions within their area of responsibility. Each district reports to one of two area commands, Atlantic and Pacific. Each of the Coast Guard area commands, and districts, is responsible for managing its assets and accomplishing missions within its geographic area of responsibility.

<sup>18</sup>Depot-level maintenance involves a complete teardown, inspection, and repair of Coast Guard aircraft. According to the Coast Guard, the Aviation Logistics Center conducts depot-level maintenance for each aircraft on a 4-year recurring schedule.



**Figure 4: Coast Guard Air Stations and Maintenance and Training Facilities, by District**



Source: GAO analysis of U.S. Coast Guard data; U.S. Census Bureau (map). | GAO-24-106374

Note: Air stations are Coast Guard units where personnel operate aircraft and support flight operations. These air stations each report to one of nine districts. Coast Guard districts are responsible for regional operations and execute operations and missions within their area of responsibility. Each district reports to one of two area commands, Atlantic and Pacific. Each of the Coast Guard area commands and districts is responsible for managing its assets and accomplishing missions within its geographic area of responsibility.

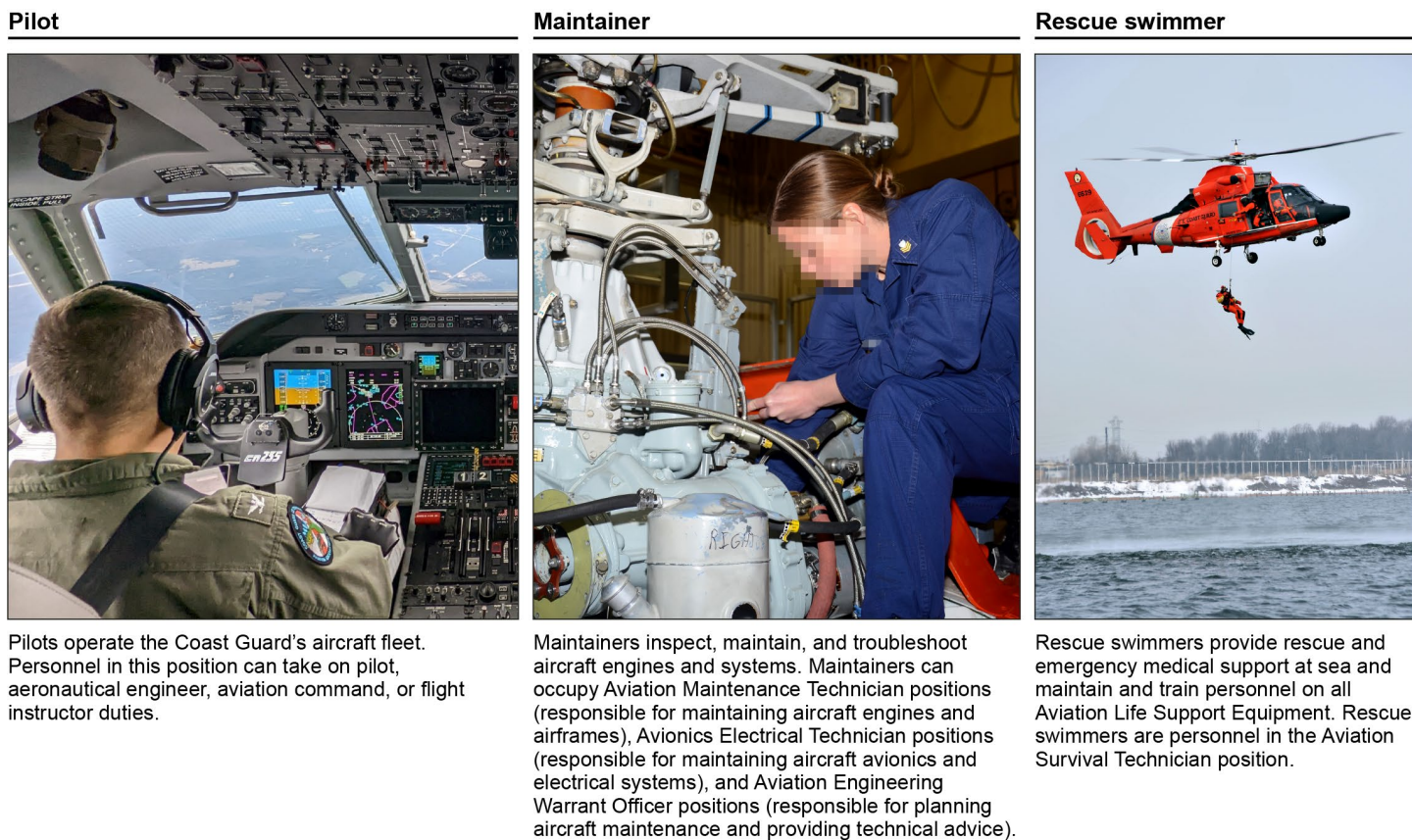
According to the Coast Guard, the Helicopter Interdiction Tactical Squadron (HITRON) provides personnel, training, and resources necessary to employ armed helicopters in support of counter drug operations.

## Aviation Workforce

As of July 2023, the Coast Guard had a workforce of about 57,000 personnel to meet its varied mission demands. The Coast Guard's aviation workforce consisted of 4,929 military and civilian personnel responsible for operating and maintaining its aircraft fleet at Coast Guard air stations and facilities across the United States. The majority of its

aviation workforce consists of military personnel (84 percent) who carry out pilot, maintainer, and rescue swimmer responsibilities (see figure 5).<sup>19</sup>

**Figure 5: Key Coast Guard Military Aviation Positions**



Source: U.S. Coast Guard photos by (left to right): courtesy photo, Petty Officer 1st Class Karlton Rebenstorf, Petty Officer 3rd Class Robert Brazzell. | GAO-24-106374

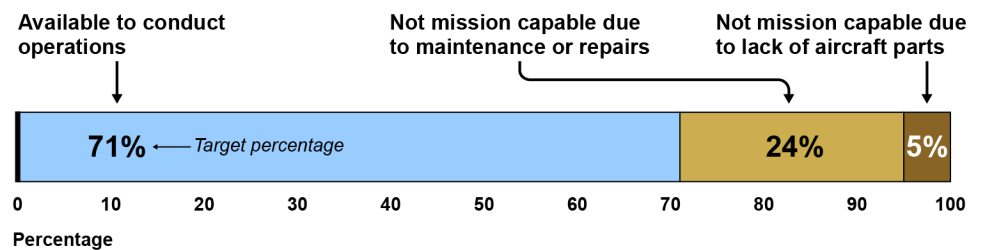
## Aircraft Generally Did Not Meet Availability Targets Due to Maintenance and Supply Issues

Coast Guard aircraft generally did not meet availability targets during fiscal years 2018 through 2022. According to Coast Guard policy, the Coast Guard targets its aircraft to be available to conduct missions at least 71 percent of time. According to Coast Guard aviation officials, having a 71 percent availability provides a 97 percent chance that an air station with three aircraft will have at least one aircraft available to launch on a mission. According to the policy, the remaining 29 percent of the

<sup>19</sup>Civilian workforce positions include Aircraft Mechanic, Contract and Procurement, and Training Instruction positions. About 670 of the 795 civilian personnel (84 percent) work at the Coast Guard's training and maintenance facilities.

time is to account for aircraft not being mission capable due to maintenance and repair and lack of parts (see figure 6).<sup>20</sup>

**Figure 6: Coast Guard's Aircraft Availability Targets**



Source: GAO analysis of Coast Guard documentation. | GAO-24-106374

Note: According to Coast Guard policy, the Coast Guard targets its aircraft to be available to conduct missions at least 71 percent of time. The remaining 29 percent of the time is to account for aircraft not being mission capable due to maintenance and repair and lack of parts. Specifically, of the 29 percent, Coast Guard policy has set a maximum of 24 percent of time that its aircraft are to be not mission capable because they require maintenance and repair, and 5 percent of time its aircraft are not mission capable because of a lack of a part needed to complete repair.

**Availability.** The Coast Guard's aircraft generally did not meet the 71 percent availability target during fiscal years 2018 through 2022. According to our analysis of Coast Guard data, the total fleet availability ranged from 66 percent to 68.3 percent during this timeframe. For example, the Coast Guard's target availability for its aircraft fleet in fiscal year 2022 was about 906,000 hours. However, its aircraft were only available about two-thirds of that time (64,000 hours less than the target). Of the Coast Guard's 25 air stations, 16 had none of its aircraft types meet the Coast Guard's availability target in fiscal year 2022.<sup>21</sup>

Nonetheless, officials at each of the eight air stations we interviewed said that they were able to meet mission demands. However, officials at three out of the eight air stations said that they had to increasingly prioritize flight operations when aircraft were not available. For example, officials from one station said they prioritize a flight for search and rescue over

<sup>20</sup>Specifically, of the 29 percent, Coast Guard policy has set a maximum of 24 percent of time that its aircraft are to be not mission capable because they require maintenance and repair and 5 percent of time its aircraft are not mission capable because of a lack of a repair part needed to complete repair.

<sup>21</sup>See appendix I for more information on the extent to which aircraft at each of the 25 Coast Guard air stations met the 71 percent availability target in fiscal year 2022.

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one for aids to navigation, such as a flight to maintain a lighthouse.<sup>22</sup> These officials added that they had also canceled training flights and search and rescue demonstrations because aircraft were not available.

While availability remained generally constant for the Coast Guard's helicopter fleet, it generally decreased for its fixed-wing fleet during fiscal years 2018 through 2022 (see figure 7). See appendix II for more details on aircraft availability for each of the Coast Guard's five aircraft types.

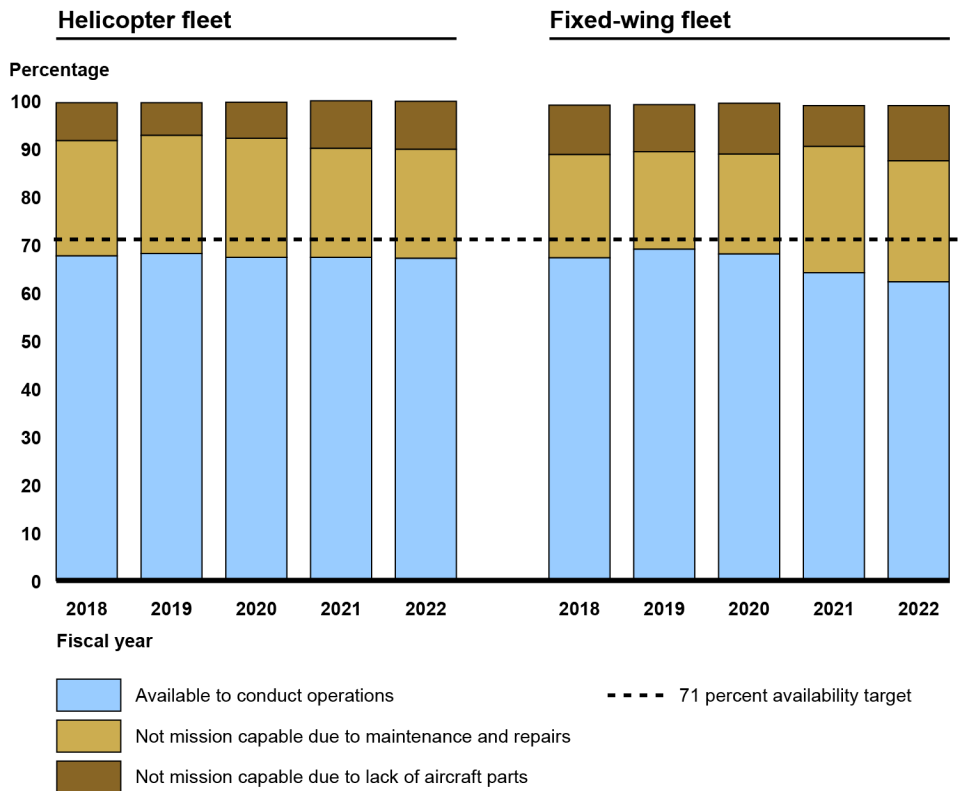
Coast Guard officials attributed the aircraft fleet generally not meeting availability targets to issues relating to maintenance and repair and challenges in obtaining needed parts to complete repairs. We have previously reported that other U.S. armed services have experienced similar challenges in their aircraft not meeting availability targets.<sup>23</sup>

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<sup>22</sup>The Coast Guard has statutory responsibility to operate and maintain a system of maritime aids to facilitate navigation and to prevent disasters, collisions, and wrecks. To fulfill this mission, the Coast Guard operates and maintains aids to navigation—such as signs, buoys, markers, and lighthouses—that it places along coasts and navigable waterways. It uses them as guides to mark safe water and to assist mariners in determining their position in relation to land and hidden dangers. See 14 U.S.C. §§ 102, 541.

<sup>23</sup>For example, in 2022, we reported that Air Force, Navy, and Marine Corps aircraft have generally not met mission capable goals. This was, in part, because of aging aircraft, maintenance, and supply issues. GAO, *Weapon System Sustainment: Aircraft Mission Capable Goals Were Generally Not Met and Sustainment Costs Varied by Aircraft*, [GAO-23-106217](#) (Washington, DC.: Nov. 10, 2022)

**Figure 7: Coast Guard Helicopter and Fixed-wing Fleet Availability, Fiscal Years 2018 through 2022**



Source: GAO analysis of U.S. Coast Guard data. | GAO-24-106374

Note: The Coast Guard's helicopter fleet is composed of the short-range (MH-65D/E) and medium range (MH-60T) recovery aircraft. Its fixed-wing fleet is composed of the medium-range (HC-144A/B and HC-27J) surveillance aircraft and the long-range (HC-130H/J) surveillance aircraft. These data cover the Coast Guard's aircraft that perform operational missions. They do not include the two C-37 jet aircraft the Coast Guard uses for transporting senior officials.

**Maintenance.** Our analysis of Coast Guard data shows that the Coast Guard's aircraft fleet generally stayed below the Coast Guard's 24 percent ceiling for aircraft time for maintenance and repair during fiscal years 2018 through 2022. However, when we looked at the aircraft types individually, only one—the HC-130H/J—consistently stayed below the 24 percent ceiling for maintenance and repair in all 5 years during this timeframe. The Coast Guard's other four aircraft types met the maintenance and repair ceiling in some, but not all years. For example, in fiscal year 2022, the most recent year in our analysis, both medium range surveillance aircraft—HC-144A/B and HC-27J—exceeded the Coast

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Guard's 24 percent unavailability due to the maintenance ceiling. See appendix II for more details.

According to officials, the rates of maintenance and repair for specific aircraft have been higher than the ceiling in some years for two primary reasons. First, according to officials from the Aviation Logistics Center and six of eight air stations we interviewed, the Coast Guard has been experiencing an increased need to make unexpected repairs and replace parts for its aircraft. Aviation Logistics Center officials explained that new and older aircraft—both of which the Coast Guard has in its fleet—are prone to needing more repairs, for different reasons.<sup>24</sup> These officials said the Coast Guard is working to reduce the need for repairs by assessing if it needs to make adjustments to the frequency they perform scheduled maintenance.

Second, officials attributed higher rates of maintenance and repairs to junior maintainers who take longer than experienced maintainers to conduct repairs. Officials at six of eight air stations we interviewed said their maintenance workforce is comprised, in part, of junior personnel, such as maintainers on their first assignment. For example, officials for one air station said that the current workforce requires more training and supervision, which results in longer maintenance timeframes. According to these officials, the Coast Guard has a high level of junior maintainers because of higher than historical work advancement opportunities through the ranks in the maintainer career path—that is, the Coast Guard has promoted these personnel faster.

In addition, officials we interviewed at one of eight air stations said that with the modernization of multiple aircraft types, experienced maintainers are having to learn new information on the job.<sup>25</sup> For example, the new HC-130J model the Coast Guard is acquiring to replace the HC-130H model uses a different type of propeller. As a result, maintainers have

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<sup>24</sup>According to Coast Guard officials, more maintenance is needed up-front to set up the infrastructure for new aircraft and address technical problems. After that, the aircraft's maintenance needs decline. In the middle of the aircraft's life, the maintenance needs plateau. However, maintenance increases again as the aircraft ages and parts wear out and need replacing.

<sup>25</sup>The MH-65E includes upgrades to the automatic flight control system and avionics from the MH-65D model. As a modernized version of the HC-130H, the HC-130J has advanced engines, propellers, and equipment that provide enhanced speed, altitude, range, and surveillance capabilities.

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needed new training to learn how to perform maintenance and repairs on it.

**Parts supply.** Our analysis of Coast Guard data shows that aircraft were not mission capable due to lack of aircraft parts 7.5 percent to 10.3 percent of the time during fiscal years 2018 through 2022, exceeding the Coast Guard's target ceiling of 5 percent. Notably, the data shows the rate increased during this time, peaking in fiscal year 2022. For example, in fiscal year 2022, the Coast Guard's target was for its aircraft fleet to spend no more than 63,814 hours offline while waiting for parts to repair its aircraft. However, the aircraft fleet spent 131,915 hours, or more than double the target.

Aviation Logistics Center officials said that the Coast Guard has been experiencing below desired supply levels for most aircraft parts, which has contributed to this issue. They noted that their supply challenges were due to various factors, including supply chain delays and a lapse in production of parts for its MH-65D/E helicopter. For example:

- Supply chain delays. Officials said the Coast Guard faced delays in obtaining parts during 2020 and 2021 because the COVID-19 pandemic caused supply chain disruptions. Officials told us that some suppliers have not recovered lost production, which has led to higher not mission capable rates across the aircraft fleet.

In addition, officials cited challenges of working with foreign suppliers to obtain parts for two European made aircraft types—HC-144A/B and HC-27J. They said delays were due to the aircraft manufacturers being based in Europe, making transit times lengthier. They added that the Coast Guard has been working closely with vendors to obtain parts more efficiently and help alleviate delays.

- Parts no longer in production. Officials said the Coast Guard has faced difficulty with obtaining spare parts for the MH-65D/E because its manufacturer stopped making this aircraft in 2018. As a result, the Coast Guard had less access to critical spare parts, such as the helicopter main gearbox.<sup>26</sup> To help address this issue, in September 2021, the Coast Guard signed a memorandum of understanding with the manufacturer to ensure it receives parts needed to sustain the

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<sup>26</sup>The gearbox module provides the power necessary for the operation of the engine and aircraft. In particular, the gear box drives the accessories and fuel pumps that are essential for the operation of the engine.

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aircraft.<sup>27</sup> We discuss the Coast Guard's plans to address this issue later in this report.

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## Air Stations do not have Complete Data for the Coast Guard to Assess Service-wide Readiness Performance

The Coast Guard uses its aircraft most heavily to accomplish its search and rescue mission responsibilities. To this end, Coast Guard policy requires air stations with search and rescue responsibilities to have an aircraft prepared to take off within 30 minutes—a standard it refers to as its readiness requirement.<sup>28</sup> According to Coast Guard officials, this means that an air station should be prepared with (1) a qualified aircrew on standby and (2) an available mission capable aircraft. The number of aircraft an air station needs ready to take off varies depending on the number of aircraft assigned to it. For example, according to Coast Guard policy, air stations with three helicopters need to have one aircraft ready to deploy within 30 minutes, at all times, for a search and rescue operation (see figure 8).

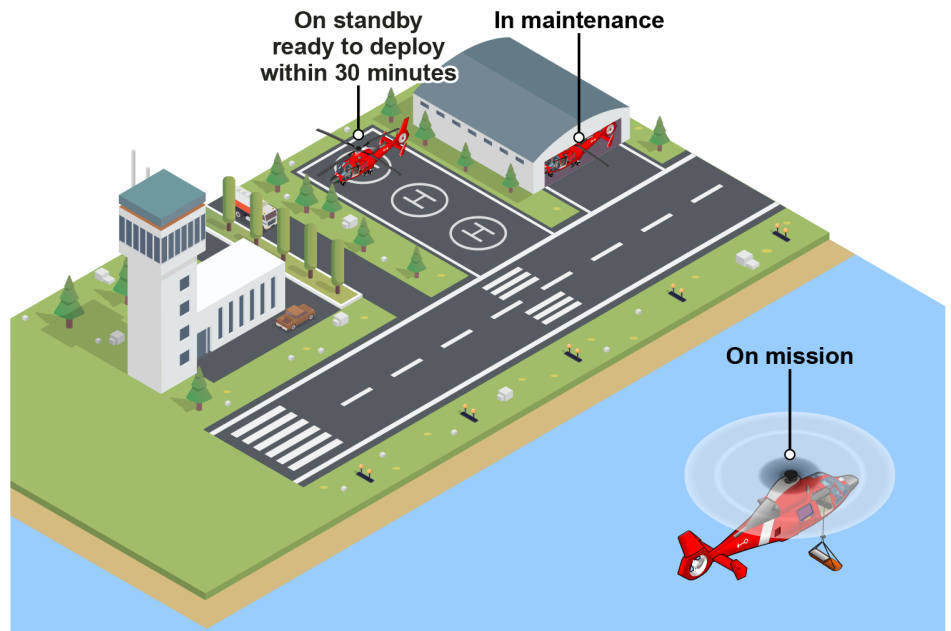
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<sup>27</sup>Under this agreement, the manufacturer committed to support the Coast Guard's MH-65D/E for the next 20 years and manage its supply chain accordingly. For example, the manufacturer agreed to order parts ahead of time in anticipation of orders from the Coast Guard. In turn, the Coast Guard committed to order certain quantities in subsequent years.

<sup>28</sup>According to Coast Guard policy, Coast Guard readiness is the organizational ability to meet mission demands. Aircraft are considered ready when available, configured in accordance with the assigned mission, and capable of safely meeting mission requirements when operated as designed. Coast Guard. *Commandant Instruction 3501.80 Coast Guard Definition of Readiness COMDTINST 3501.80* (Mar. 31, 2020).



**Figure 8: Coast Guard Air Station with Three Helicopters Meeting Readiness Requirements**



Source: GAO illustration; nauticreative/stock.adobe.com (airport illustration); Aurielaki/stock.adobe.com (helicopter illustrations). | GAO-24-106374

Coast Guard headquarters officials explained that the Coast Guard uses its Asset Logistics Management Information System to document the readiness status of an air station. Specifically, according to the Coast Guard’s Aeronautical Engineering Maintenance Management Process Guide, air stations report instances in the system when all aircraft are unavailable to respond. This is to indicate an inability for an air station to meet readiness requirements. However, according to headquarters officials, the Coast Guard does not track the extent its 23 air stations with search and rescue responsibility report these data.<sup>29</sup> Further, at the headquarters level, they said they had not assessed the extent air stations are meeting readiness requirements.

In addition, Coast Guard air stations do not collect complete data on readiness. We found that the Coast Guard does not have data for all air stations and that air stations enter the data inconsistently. Specifically, Coast Guard headquarters did not have data for two out of the 23 Coast

<sup>29</sup>Two of the Coast Guard’s 25 air stations, Air Station Washington D.C. and the Helicopter Interdiction Tactical Squadron, do not conduct search and rescue operations. Thus, they do not report unable to maintain readiness data for their aircraft.

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Guard air stations. In addition, officials at one of the eight air stations we interviewed said they did not consistently report these data. Officials from this one air station explained that they had not consistently reported these data in the Asset Logistics Management Information System because they had not received instructions to do so.

According to headquarters officials, Coast Guard headquarters does not typically assess the extent its air stations are meeting readiness requirements. They said this was because the relevant districts were responsible for doing so. In addition, these officials said it is the respective district's prerogative to monitor air station readiness by whatever method they choose. Officials from each of the Coast Guard's two area commands said their respective districts had not raised any issues related to readiness. Further, headquarters officials said the Coast Guard has been meeting air station readiness requirements. However, because the readiness data were incomplete, they did not have reliable data available to show this.

According to headquarters officials, Coast Guard policy defines but does not mandate the collection of readiness data. Coast Guard headquarters officials explained that the data are tracked manually by each air station. As a result, they said that it could be subject to errors or localized determinations of readiness requirements.

The Coast Guard's *Framework for Strategic Mission Management, Enterprise Risk Stewardship, and Internal Control* states that management should use quality information to achieve the entity's objectives.<sup>30</sup> Quality information should be accessible, complete, and accurate to help management make informed decisions and evaluate performance in achieving key objectives and addressing risks.<sup>31</sup> By establishing procedures requiring air stations to uniformly collect and maintain aircraft readiness data, the Coast Guard can help ensure it has complete and accurate information on Coast Guard-wide air station readiness. Moreover, by regularly evaluating these data, Coast Guard

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<sup>30</sup>U.S. Coast Guard Deputy Commandant for Operations, *Framework for Strategic Mission Management, Enterprise Risk Stewardship, and Internal Control* (Washington, D.C.: July 2020).

<sup>31</sup>[GAO-14-704G](#). Federal internal control standards define quality information as information that is appropriate, current, complete, accurate, accessible, and provided on a timely basis.

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leadership can track performance and identify potential individual or Coast Guard-wide air station readiness concerns.

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## Efforts to Modernize Aircraft Are Underway, but Coast Guard Has Not Assessed Helicopter Fleet Mix Needs

The Coast Guard has four acquisition programs underway to modernize its aging aircraft fleet, with an estimated cost of about \$105.6 billion. As of January 2024, the four programs were generally meeting their approved cost and schedule baselines.<sup>32</sup> One of the four programs aims to consolidate the Coast Guard's largely short-range helicopter fleet to a smaller fleet composed of all medium-range helicopters. The Coast Guard is pursuing this approach because of the rapid decline in availability of the short-range fleet due to parts shortages. However, the Coast Guard is pursuing this \$57.9 billion approach without having fully assessed (1) available alternatives and (2) its necessary fleet size to meet its mission demands.

## Modernization Programs are Meeting Current Cost and Schedule Baselines

As of January 2024, the Coast Guard's four acquisition programs were generally meeting cost and schedule baselines. These programs are the medium-range surveillance aircraft (HC-144B/HC-27J), the long-range surveillance aircraft (HC-130J), the short-range recovery helicopter (MH-65E), and the medium-range recovery helicopter (MH-60T). As of January 2024, these programs had collective life cycle cost estimates of about \$105.6 billion. According to the Coast Guard, the programs aim to achieve full operational capability by fiscal years 2032 for the HC-144B/HC-27J, 2033 for the HC-130J, and 2024 for the MH-65E.<sup>33</sup> The Coast Guard plans to complete the MH-60T program in three increments, with the first one aiming to achieve full operational capability in fiscal year 2032.

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<sup>32</sup>A DHS-approved acquisition program baseline establishes what a program will cost and when it will be delivered. Specifically, it establishes objective (target) and threshold (maximum acceptable for cost, latest acceptable for schedule) baselines. According to DHS policy, if a program fails to meet any cost or schedule threshold approved in the baseline, it is considered to be in breach. Programs in breach status are required to notify their acquisition decision authority and develop a remediation plan that outlines a time frame for the program to either return to its baseline parameters, re-baseline (e.g., establish a new cost or schedule), or have a DHS-led program review that results in recommendations for a revised baseline.

<sup>33</sup>A life cycle cost estimate provides a structured accounting of all labor, material, and other efforts required to develop, produce, operate and maintain, and dispose of a program. Full operational capability means the system is deployed and operating at all intended locations.

These four modernization programs include the purchase of new aircraft, extension of aircraft service life, and addition of new capabilities.<sup>34</sup>

**Medium Range Surveillance Aircraft (HC-144B and HC-27J) Modernization.** The Coast Guard’s modernization efforts for its current fleet of medium range aircraft include upgrades such as sensors and reconnaissance equipment to enhance operator interface and sensor management to improve surveillance. According to Coast Guard acquisition planning documents, the program expects to complete its upgrades for its 18 HC-144Bs by fiscal year 2025 and 14 HC-27Js by fiscal year 2032. See figure 9 for an example of a medium-range surveillance aircraft undergoing modernization at the Aviation Logistics Center.

**Figure 9: Coast Guard Modernization of Medium-Range Surveillance Aircraft**



Source: U.S. Coast Guard photos. | GAO-24-106374

Note: Medium-range surveillance aircraft undergoing modernization at Coast Guard’s Aviation Logistics Center. The modernization includes upgrades to existing mission systems, including sensors and communication and surveillance equipment.

**Long-Range Surveillance Aircraft (HC-130J) Modernization.** The Coast Guard is modernizing its long-range surveillance aircraft by acquiring 22 new aircraft. These are to have advanced engines, propellers, and other equipment to enhance speed, altitude, and range compared to the prior version, the HC-130H. It is also installing a new mission system to enhance operator interface and sensor management

<sup>34</sup>A service life extension refers to a modification to extend the service life of an aircraft beyond what was planned, without adding new capabilities.

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and replace obsolete equipment. According to Coast Guard acquisition planning documents, the program expects to complete the acquisition and for the aircraft to be fully operational by fiscal year 2033.

**Short-Range Recovery Helicopter (MH-65E) Service Life Extension and Modernization.** The MH-65D fleet started reaching the end of its original service life of 20,000 flight hours in fiscal year 2021. The Coast Guard is executing a service life extension program to provide another 10,000 flight hours, which it expects will allow the helicopter to be in service until fiscal year 2039. The program is also adding new capabilities through modernization of the flight control system and avionics, including a digital cockpit display system and upgrades to the weather radar. Upon completion, the helicopter will be designated as an MH-65E. According to Coast Guard acquisition planning documents, the program expects to complete the service life extension, modernization, and deployment of all of its MH-65Es by September 2024. Figure 10 shows the Coast Guard conducting modernization of an MH-65E at the Aviation Logistics Center.

**Figure 10: Coast Guard Modernization of Short-Range Recovery Helicopters**



Source: U.S. Coast Guard photo. | GAO-24-106374

Note: Short-range recovery helicopters undergoing modernization at Coast Guard's Aviation Logistics Center. The modernization includes upgrades to mission systems, such as upgrades to the flight control and weather radar systems.

### **Medium-Range Recovery Helicopter (MH-60T) Service Life Extension and Growth.**

The MH-60T fleet started reaching the end of its original service life of 20,000 flight hours in fiscal year 2021. The program aims to extend the helicopter's service life of the existing fleet, and then grow the fleet size from 48 to at least 127, in three increments. The Coast Guard is currently implementing the first increment, the service life extension. Specifically, to extend the service life of the MH-60T fleet through the late 2040s, the program is replacing the body of the helicopters with either new hulls or converting hulls previously used by the Navy. According to Coast Guard acquisition planning documents, the program expects to complete the service life extension increment in fiscal year 2032.

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Figure 11 summarizes the status of the Coast Guard's aircraft modernization programs. For more details on each of the modernization programs, see appendix III.<sup>35</sup>

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<sup>35</sup>For additional detailed information on the status Medium-Range Recovery Helicopter Sustainment (MH-60T) and Medium-Range Surveillance Aircraft (HC-144B/HC-27J), see GAO, *DHS Annual Assessment: Most Programs Are Meeting Current Goals, but Some Continue to Face Cost and Schedule Challenges* ([GAO-24-106573](#)), (Washington, D.C.: Feb. 22, 2024)

Figure 11: Status of Selected Coast Guard Aircraft Modernization Programs, as of January 2024

**Medium-Range Surveillance Aircraft (HC-144B/HC-27J)**

**Status of aircraft delivery**

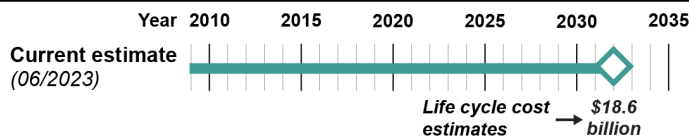
HC-144B (18 aircraft)



HC-27J (14 aircraft)

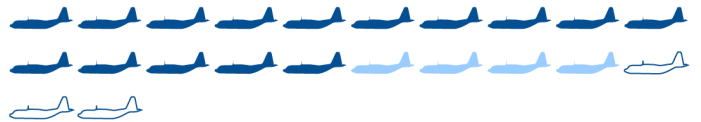


**Current cost estimates and schedule**

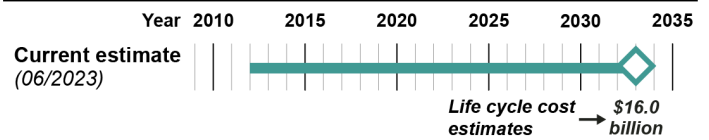


**Long-Range Surveillance Aircraft (HC-130J)**

**Status of aircraft delivery (22 aircraft)**

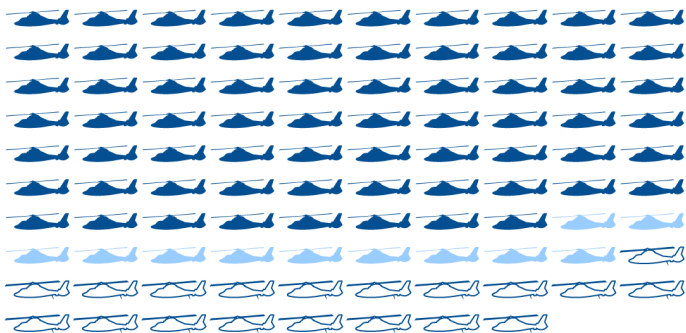


**Current cost estimates and schedule**

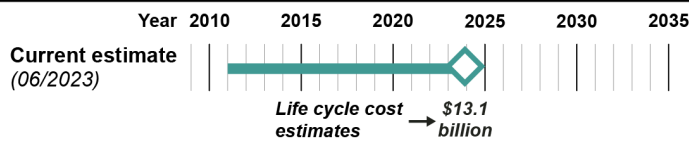


**Short-Range Recovery Helicopter (MH-65E)**

**Status of aircraft delivery (98 aircraft)**

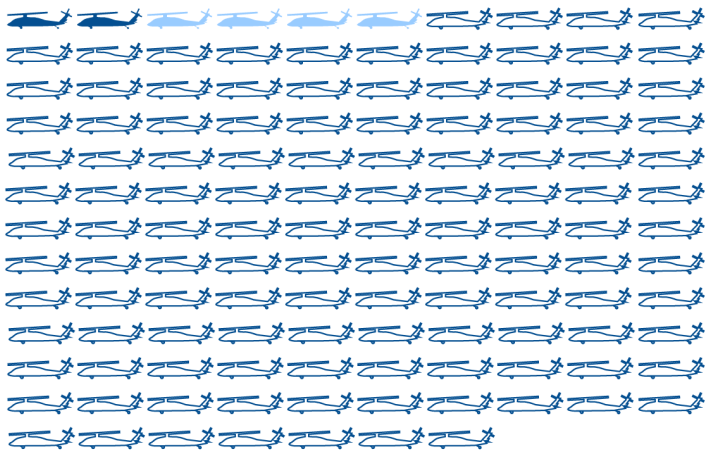


**Current cost estimates and schedule**

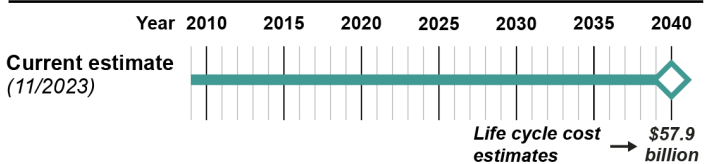


**Medium-Range Recovery Helicopter (MH-60T)**

**Status of aircraft delivery (127 aircraft)**



**Current cost estimates and schedule**



**Legend**

- Delivered or upgraded
- In production
- Not in production
- Fully operational capable date

Source: GAO analysis of Coast Guard acquisition information; GAO (illustrations). | GAO-24-106374

Note: A life cycle cost estimate provides a structured accounting of all labor, material, and other efforts required to develop, produce, operate and maintain, and dispose of a program. Full operational capability means the system is deployed and operating at all intended locations.



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## Coast Guard Plans to Consolidate its Short- and Medium-Range Helicopter Fleet but Has Not Assessed Type and Quantity Needed

### Coast Guard Plans to Consolidate Its Helicopter Fleet

In January 2021, the Coast Guard decided to consolidate its helicopter fleet to an all medium-range (MH-60T) fleet and phase out of its short-range (MH-65D/E) fleet. According to Coast Guard documentation, it made this decision because the MH-65D/E helicopter manufacturer ended production of the helicopter in 2018. According to the Coast Guard, this led to an increased difficulty in obtaining critical parts, such as gearboxes, which decreased the availability of the fleet. As a result, the Coast Guard had to reduce flight hours for the MH-65D/E fleet. The Coast Guard plans for its future helicopter fleet to be comprised of at least 127 MH-60T helicopters.

The Coast Guard plans to accomplish this in three increments using either new hulls—body of the helicopter—or converting hulls previously used by the Navy.<sup>36</sup> In November 2023, DHS approved the first two increments and expects to approve the third increment in fiscal year 2027. According to its most recent estimate, the program cost will be \$57.9 billion.<sup>37</sup> Once implemented, the Coast Guard reports it would have a more capable helicopter fleet, as the MH-60T helicopter has about double the range as the MH-65D/E helicopter. However, it would have a 13 percent smaller fleet size—moving from its current 146 units to at least 127 units.

### Coast Guard Has Not Assessed Whether Medium Range MH-60T is the Best Alternative to the Short-Range MH-65E Helicopter

The Coast Guard has not assessed whether the MH-60T helicopter best meets its mission needs under its plans to consolidate its fleet. As previously noted, the Coast Guard plans to replace its MH-65E helicopters with its MH-60T helicopters. However, the Coast Guard did not assess alternatives to support this approach.

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<sup>36</sup>In the first increment, the Coast Guard will extend the service life of 45 MH-60Ts in its current fleet. In increment two, the Coast Guard will add 36 aircraft to its fleet. In increment three, the Coast Guard will acquire additional hulls to finalize the MH-60T fleet expansion. During this last phase it would phase out its MH-65 fleet.

<sup>37</sup>According to the Coast Guard, this estimate includes \$1.32 billion for air station infrastructure changes to accommodate the larger MH-60T aircraft.

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The Coast Guard last fully assessed the type of helicopter it needed in 2005 as part of its initial vessel and aircraft modernization program. This assessment considered the different missions that the Coast Guard is responsible for and the capabilities of each helicopter type. From this assessment, the Coast Guard determined that it would use a mix of short-range and medium-range helicopters to meet mission demands.

A 2020 RAND Homeland Security Operational Analysis Center study on Coast Guard aviation also supported the Coast Guard maintaining a mix of helicopter types.<sup>38</sup> Specifically, the study identified a benefit to the Coast Guard having a fleet composed primarily of MH-60T helicopters along with sufficient short-range helicopters to complete certain missions, such as drug interdiction.

Coast Guard officials stated that the MH-60T helicopter is more capable than the MH-65D/E. However, questions remain on its ability to meet certain mission demands, particularly those operations that require helicopters to operate, and be secured on, a cutter. For example, Coast Guard helicopters deploy on cutters for certain drug interdiction operations far offshore and in remote locations, such as the eastern Pacific. The Coast Guard has primarily used its MH-65D/E helicopters during these deployments, as shown in figure 12.

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<sup>38</sup>RAND Homeland Security Operational Analysis Center, *Meeting U.S. Coast Guard Airpower Needs: Assessing the Options*, (2020). The Homeland Security Operational Analysis Center is a federally funded research and development center operated by the RAND Corporation under contract with the Department of Homeland Security.

**Figure 12: Coast Guard Short-range Recovery Helicopter Conducting Operations Offshore**



Source: U.S. Coast Guard photo. | GAO-24-106374

Note: Coast Guard short-range recovery helicopter conducting operations off a cutter. The Coast Guard deploys helicopters aboard cutters to support missions far offshore, such as to support counterdrug operations.

Currently, the MH-65D/E helicopter is the only Coast Guard helicopter that is fully compatible for cutter-based deployments.<sup>39</sup> The MH-60T helicopter is heavier and larger, and thus requires additional equipment to make it compatible with the cutter for deployment. The Coast Guard is acquiring hardware and developing procedures to make this possible in certain cutters.<sup>40</sup> However, the Coast Guard did not assess alternative

<sup>39</sup>By compatible, we refer to those cases where a helicopter embarks with, and attaches to, a cutter. The Coast Guard also refers to this as deployable.

<sup>40</sup>For example, the MH-60T is larger than the MH-65D/E and does not fit in the Coast Guard's National Security Cutter's hangar. To help address this, the Coast Guard plans to modify 48 MH-60T helicopters so that their tails and blades fold, thereby enabling them to fit aboard these cutters. In addition, the Coast Guard is acquiring 25 Offshore Patrol Cutters, which are designed to hangar and operate one MH-60 or MH-65 helicopter at a given time. However, there have been delays with this acquisition program and it is unclear when they will be delivered to the Coast Guard.

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helicopters to the MH-60T that may meet its cutter deployment demands. Thus, it is unclear if the MH-60T helicopter is best suited to serve all the Coast Guard missions and associated operations.

The Coast Guard's *Framework for Strategic Mission Management, Enterprise Risk Stewardship, and Internal Control* states that management should use quality information to achieve the entity's objectives.<sup>41</sup> Quality information should be accessible, complete, and accurate to help management make informed decisions and address risks.<sup>42</sup> An analysis of alternatives is one way for the Coast Guard to obtain and use quality information on the types of helicopters it requires to meet mission demands. An analysis of alternatives—an analytical study comparing the operational effectiveness, costs, and risks—is a key first step in the major acquisition process to help ensure that the selected alternative best meets the agency's mission need.<sup>43</sup>

The Coast Guard's plans to consolidate the helicopter fleet show that it does not plan to conduct an additional analysis of alternatives. Coast Guard headquarters officials said that the Coast Guard did not analyze other helicopters to fulfill short-range helicopter missions because they do not plan to acquire new helicopters. Rather, the Coast Guard aims to sustain the MH-60T fleet through the mid-2040s to align with a Department of Defense helicopter acquisition program, allowing the Coast Guard to work with the Department of Defense on a successor

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<sup>41</sup>U.S. Coast Guard Deputy Commandant for Operations, *Framework for Strategic Mission Management, Enterprise Risk Stewardship, and Internal Control* (Washington, D.C.: July 2020).

<sup>42</sup>[GAO-14-704G](#). Federal internal control standards define quality information as information that is appropriate, current, complete, accurate, accessible, and provided on a timely basis.

<sup>43</sup>In 2009, we defined the analysis of alternatives process as an analytical study that is intended to compare the operational effectiveness, cost, and risks of a number of potential alternatives to address valid needs and shortfalls in operational capability. This process helps ensure that the best alternative that satisfies the mission need is chosen on the basis of the selection criteria, such as safety, cost, or schedule. In December 2014, we identified 24 best practices for the analysis of alternatives process. These best practices include defining functional requirements based on mission need, conducting the analysis of alternatives without a predetermined solution, including the status-quo alternative, and conducting an independent review of the entire process. These practices can be applied to a wide range of activities, projects, and programs. See GAO, *Defense Acquisitions: Many Analyses of Alternatives Have Not Provided a Robust Assessment of Weapon System Options*, [GAO-09-665](#) (Washington, D.C.: Sept. 24, 2009); and DOE and NNSA *Project Management Analysis of Alternatives Could Be Improved by Incorporating Best Practices*, [GAO-15-37](#) (Washington, D.C.: Dec. 11, 2014).

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Coast Guard Considered  
Limited Information to  
Determine Future Fleet Size  
Needs

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helicopter.<sup>44</sup> However, the Coast Guard needs to ensure that it can meet its mission demands before the introduction of a successor helicopter, which may not occur for at least 20 years. As previously stated, the Coast Guard has not assessed whether the MH-60T can best meet all its mission needs. Coast Guard headquarters officials stated that the MH-60T program could benefit from assessing different helicopter types to guide its acquisition approach and address capability shortfalls before the introduction of a successor helicopter.

Assessing the type of helicopters the Coast Guard requires to meet mission needs would help the Coast Guard determine whether the MH-60T helicopter is the best alternative for replacing the MH-65E helicopter.

The Coast Guard has not completed the necessary analysis to ensure that its planned helicopter fleet size of at least 127 MH-60Ts will allow it to meet mission demands. Specifically, the Coast Guard has not conducted a fleet mix analysis to determine the helicopter fleet size it needs to meet current and future mission demands.<sup>45</sup> Instead, Coast Guard officials told us they used historical annual flight hours to estimate equivalent flight hours.

The Coast Guard last fully assessed its helicopter fleet requirements and conducted a fleet mix analysis in 2005. Based on this assessment, the Coast Guard determined that it required 102 MH-65D/E helicopters and 42 MH-60T helicopters, approximately the mix it has currently. The Coast Guard plans to reduce the number of helicopters in its fleet size from 146 to at least 127 without updating its fleet mix analysis because, according to officials, a smaller MH-60T helicopter fleet would provide similar flight hour totals that the current fleet provides. According to Coast Guard officials, the smaller MH-60T fleet's ability to meet mission demands is predicated on its greater range and associated flight hours.

However, the Coast Guard's projection based solely on hours does not consider, for example, how having a smaller fleet size would affect its

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<sup>44</sup>The Coast Guard planned to operate both the MH-60T and MH-65 helicopters until the 2030s and align its next helicopter acquisition effort with the Department of Defense's acquisition plans. However, the MH-65's declining availability and, according to Coast Guard officials, Department of Defense's decision to delay its acquisition efforts, caused the end of service life of the MH-65 fleet in 2037 to no longer align with Department of Defense's efforts, creating a potential operational gap.

<sup>45</sup>A fleet mix analysis uses already determined asset types to identify the appropriate number of assets the Coast Guard will need to execute its mission set under varying constraints such as funding.

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ability to sustain surge operations when more helicopter support is needed. Further, the Coast Guard has reported that its mission demands have grown in recent years. In this way, it may require a larger fleet size to meet them.

The Coast Guard's *Framework for Strategic Mission Management, Enterprise Risk Stewardship, and Internal Control* states that management should collect and use quality information to achieve the entity's objectives.<sup>46</sup> Quality information should be accessible, complete, and accurate to help management make informed decisions and evaluate performance in achieving key objectives and address risks.<sup>47</sup> Further, the Coast Guard's 2016 Mission Needs Statement emphasizes the importance for the Coast Guard to evaluate the effectiveness of various fleet mixes to inform the evolution of its Capital Investment Plan, a key document it uses to inform its budget request.<sup>48</sup> In 2016, the Coast Guard conducted a fleet mix analysis for its fixed-wing fleet to inform this plan. However, it has not conducted one in almost 20 years for its helicopter fleet. Such an analysis would determine the number of helicopters the Coast Guard requires to meet its mission demands and inform its Capital Investment Plan.

Coast Guard documentation of plans to consolidate to an all MH-60T fleet shows that the Coast Guard does not intend to conduct a fleet mix analysis. According to officials, the Coast Guard has not conducted such analysis because it has not been required to do so. However, in December 2023, Coast Guard headquarters officials stated that assessing the helicopter fleet needs relative to increasing mission demands would be important to guide its aviation strategy and acquisition approach.

By assessing the number of helicopters it requires to meet its mission demands, as part of a fleet mix analysis, the Coast Guard would better guide its acquisition approach and ensure it identifies resource needs for the effort.

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<sup>46</sup>U.S. Coast Guard Deputy Commandant for Operations, *Framework for Strategic Mission Management, Enterprise Risk Stewardship, and Internal Control* (Washington, D.C.: July 2020).

<sup>47</sup>[GAO-14-704G](#).

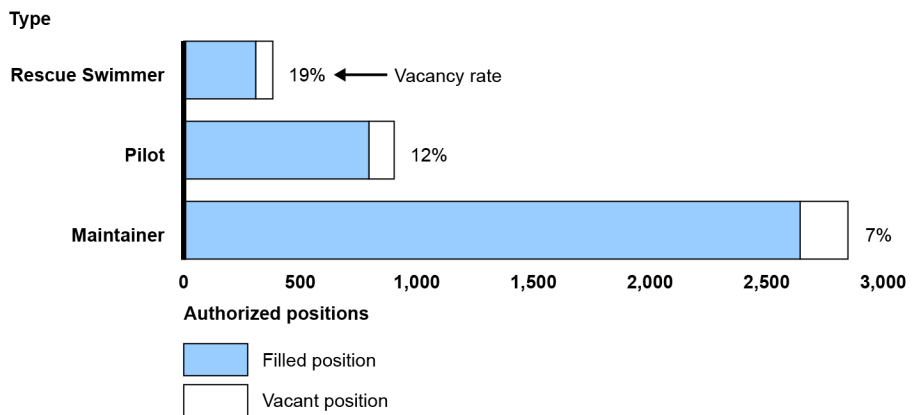
<sup>48</sup>See Coast Guard, *United States Coast Guard FY2023-2027 Capital Investment Plan*, (Washington D.C.: June 16, 2023); and Coast Guard, *Coast Guard Mission Needs Statement, Fiscal Year 2015 Report to Congress* (Washington, DC.: Jan. 8, 2016).

# Coast Guard Has Not Fully Determined Aviation Workforce Needs

## Vacancies Exist Across Key Aviation Workforce Positions

As of July 2023, the Coast Guard had 387 of 4,134 (9 percent) of its authorized military aviation workforce positions vacant.<sup>49</sup> Specifically, our analysis of Coast Guard workforce data shows it had 73 out of 382 (19 percent) vacancies for rescue swimmers, 109 out of 903 (12 percent) vacancies for pilots, and 205 out of 2,849 (7 percent) vacancies for maintainers, as shown in figure 13.

**Figure 13: Number of Authorized Military Coast Guard Aviation Positions, Filled and Vacant, as of July 2023**



Source: GAO analysis of Coast Guard data. | GAO-24-106374

Note: According to Coast Guard data, pilot vacancies vary by aircraft type. For example, with respect to its fixed-wing fleet, HC-27J pilots have the highest vacancy of 16 percent, while HC-130H/J and HC-144A/B pilots have the lowest vacancy of about 6 percent. With respect to its helicopter fleet, MH-65D/E pilots have a vacancy of about 11 percent, and MH-60T pilots have a vacancy of about 9 percent.

According to the Coast Guard, it has faced persistent challenges filling certain aviation positions it considers to be understaffed. Specifically, Coast Guard officials said they face workforce challenges related to shortages for rescue swimmers and pilots.

<sup>49</sup>An authorized position is a funded position that may be vacant or filled.

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**Rescue swimmers.** According to Coast Guard documentation, rescue swimmers are a critically understaffed position.<sup>50</sup> Specifically, the Coast Guard has a shortage of junior rescue swimmers.<sup>51</sup> Officials from six out of eight air stations we interviewed told us that their air station faces a rescue swimmer shortage. Officials from one air station said the rescue swimmer shortage resulted in increased workloads for other personnel. These officials said the air station assigned personnel in other positions to assist with rescue swimmer responsibilities, such as maintaining or inspecting aviation gear.

Coast Guard human resources and Atlantic Area Command officials stated that one cause of the shortage is the difficulty of the rescue swimmer training program, which has had low graduation rates. These officials said the training program had a high number of dropouts due to the mental and physical intensity of the training. According to Atlantic Area Command officials, the Coast Guard has been working on improvements to the rescue swimmer syllabus such as outlining specific requirements to enable the Coast Guard to better prescreen for qualified candidates. Human resources officials said the changes to the training curriculum have initially increased graduations, decreased training times, and will allow more rescue swimmers to join aircraft operations. In addition, the Coast Guard started offering a retention incentive to rescue swimmers to help prevent attrition in the existing workforce. For example, the Coast Guard offered a bonus of \$25,000 per year for 4 years for rescue swimmers in fiscal year 2024.

**Pilots.** According to Coast Guard documentation, helicopter pilots are a critically understaffed position. Coast Guard officials from two out of eight air stations we interviewed told us that their air station faced a pilot shortage. For example, due to the shortage, officials from one air station called in pilots from two other air stations to support the pilot workload. Coast Guard headquarters officials stated the current number of pilots the Coast Guard trained annually is not enough to replace the losses from pilots leaving the Coast Guard.

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<sup>50</sup>The Coast Guard defines a position as “critically” understaffed when it has 95 percent or less people assigned to a rank within a particular position. Because this calculation is looking at gaps or surplus by each rank, it can be different than the overall vacancy rate for the position.

<sup>51</sup>As of October 2023, the most junior rank (E4) was the only position critically understaffed.



Coast Guard human resources officials said they face a retention challenge with pilots who are leaving for the commercial sector.<sup>52</sup> In October 2022, the Coast Guard offered retention incentives for pilots to address the pilot shortage. For example, in fiscal year 2023, the Coast Guard offered retention incentives of up to \$35,000 a year for up to 5 years for fixed-wing pilots and \$15,000 a year for up to 5 years for helicopter pilots (see table 1).

However, according to Coast Guard data, the number of fixed-wing and helicopter pilots accepting these incentives generally declined from fiscal years 2018 through 2023. Notably, the helicopter pilot acceptance rate declined sharply during this time, from 76 to 17 percent. According to Coast Guard human resources officials, this is, in part, because pilots prefer alternative incentives, such as geographic stability or more control over where they are assigned, rather than monetary incentives. Officials said the Coast Guard is working to address these preferences to make incentives more appealing for pilots.

**Table 1: Coast Guard Pilot Retention Incentives and Acceptance Rates, Fiscal Years 2018 Through 2023**

Fiscal year	Fixed-wing pilot		Helicopter pilot	
	Incentive	Acceptance rate	Incentive	Acceptance rate
2018	\$25,000 per year for 2 to 5 years	52 percent	\$25,000 per year for 2 to 5 years	76 percent
2019	\$35,000 per year for 5 years	32 percent	\$15,000 per year for 5 years	68 percent
2020	\$35,000 per year for 5 years	48 percent	\$15,000 per year for 5 years	56 percent
2021 <sup>a</sup>	No Incentives Offered		No Incentives Offered	
2022 <sup>a</sup>	No Incentives Offered		No Incentives Offered	
2023	\$35,000 per year for 5 years	33 percent	\$15,000 per year for 5 years	17 percent

Source: GAO analysis of Coast Guard documentation. | GAO-24-106374

<sup>a</sup>Coast Guard headquarters officials said the Coast Guard did not offer incentives in fiscal years 2021 and 2022. They said this was because of lower hiring efforts in the airline industry during these years leading the Coast Guard to pause its monetary incentive program.

<sup>52</sup>We have previously reported that other armed services have experienced similar pilot retention challenges. For example, in 2018, we found the Air Force, the Navy, and the Marine Corps had staffing gaps for fixed-wing pilots from fiscal years 2013 through 2017. GAO, *Military Personnel: Collecting Additional Data Could Enhance Pilot Retention Efforts*, [GAO-18-439](#) (Washington, DC.: June 21, 2018). Similarly, in 2023, we reported the aviation industry has a strong demand for pilots and has been taking steps to address workforce supply concerns, such as by increasing pay for pilots. GAO, *Aviation Workforce: Current and Future Availability of Airline Pilots and Aircraft Mechanics*, [GAO-23-105571](#) (Washington, DC.: May 17, 2023)

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## Coast Guard Has Not Determined Necessary Aviation Workforce Levels to Meet Mission Needs

While the Coast Guard is undertaking efforts to retain its workforce and address key vacancies, it has not determined the necessary aviation workforce levels. Specifically, it has not determined the necessary number of aviation personnel and skills by position—aviators, maintainers, and rescue swimmers—to meet its growing mission demands—which may be higher or lower than the number of its authorized positions.

Specifically, the Coast Guard has not completed the Manpower Requirements Determinations (MRD) process, for any of its aviation units.<sup>53</sup> The MRD is the Coast Guard’s preferred tool for performing workforce needs assessments to determine the workforce size and composition necessary for it to effectively execute its missions.

According to its Manpower Requirements Plan, the Coast Guard’s goal is to review and validate workforce needs assessments for all units every 5 years. This includes units such as air stations and facilities, aviation training centers, and for each of the aircraft types. In addition, the Coast Guard’s Manpower Requirements Manual states that the Coast Guard should assess workforce needs when a unit’s mission, function, or task requirements change. This includes when it establishes new organizational entities, proposes changes to them, or makes changes to a unit’s mission capability.<sup>54</sup> The Coast Guard should also assess workforce needs when it acquires or makes changes to assets.

However, the Coast Guard has not completed the MRD process to assess and determine necessary workforce levels and skills for its

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<sup>53</sup>According to the Coast Guard Manpower Requirement Manual, the MRD process starts with a Manpower Requirements Analysis. The Manpower Requirements Analysis defines both the number of workers and the necessary mix of skills for the positions required. The MRD uses results from this analysis to identify the number and type of positions a unit (i.e., organized groups of Coast Guard personnel with a similar purpose) requires to meet mission-based capability requirements.

<sup>54</sup>In February 2020, we found the Coast Guard used MRDs to assess and determine a small portion of its total workforce needs. We recommended, among other things, the service plan for how it will meet its goal of using the process to assess its service-wide workforce needs. The Coast Guard concurred and reported it would update its Manpower Requirements Plan with plans on how it will implement its goal for using the MRD process for all of its units and positions. In September 2023, the Coast Guard provided a memorandum outlining its manpower study intent for fiscal years 2023 to 2028. According to this document, the Coast Guard intends to begin or complete manpower requirement analysis for about 20 units, subject to resource availability, shifting priorities, and other factors. We continue to monitor actions the Coast Guard takes to fully implement this recommendation. GAO. *Coast Guard: Actions Needed to Evaluate the Effectiveness of Organizational Changes and Determine Workforce Needs*, [GAO-20-223](#) (Washington, D.C.: Feb. 26, 2020).

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aviation workforce. This includes its 25 air stations, two training centers, and its major repair facility. As discussed earlier, the Coast Guard is changing the composition of its aircraft fleet. This change could affect workforce requirements needed to operate aircraft.

Moreover, the Coast Guard has made organizational changes to some of its aviation units but has not met requirements for assessing necessary workforce needs for these units. For example, air stations Port Angeles, Astoria, and Corpus Christi were not standalone units. The Coast Guard completed an organizational change for them to be separate units in 2023. However, as of October 2023, the Coast Guard had not assessed the workforce needs for these air stations as required after undergoing an organizational change.

Coast Guard headquarters officials acknowledged the importance of meeting MRD requirements and determining the workforce needs for the aviation workforce, but the Coast Guard has not prioritized their completion. In July 2023, the Coast Guard provided a list of the workforce assessments it plans to start in the next 5 years. This list included one out of five Coast Guard aircraft types and did not include any of its aviation units.

According to Coast Guard headquarters officials, the Coast Guard completed a workforce assessment for one out of its five aircraft types (the MH-60T) in March 2024. In addition, these officials said that the Coast Guard intends to start a workforce assessment for all 25 of its air stations, which would include remaining aircraft types, in fiscal year 2024. However, officials noted that as of August 2023 they had not identified a funding source for supporting the MRDs, and it was unclear when this analysis would occur.

In recent years, the Coast Guard's aviation mission demands have expanded to cover new units and aircraft types, which the Coast Guard's guidelines state should be assessed to determine appropriate staffing levels. By assessing and determining the staffing levels necessary to meet its aviation mission demands, the Coast Guard can better understand the resources it requires, including those for pilots, maintainers, and rescue swimmers.

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## Conclusions

The Coast Guard relies heavily on its aircraft to meet its varied and growing mission demands. These growing mission demands underscore the importance for it to identify its resource needs, including the aircraft it needs and the workforce to operate and maintain them.

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Coast Guard aircraft are critical for the timely response to search and rescue. However, the Coast Guard does not have complete data to ensure that its air stations have aircraft at the ready. Establishing procedures for air stations to uniformly collect and maintain aircraft readiness data and subsequently assessing these data could help the Coast Guard identify potential individual or Coast Guard-wide air station readiness concerns.

The Coast Guard faces key decisions in managing its aging aircraft fleet and implementing an extensive modernization program across all of its aircraft types. In particular, the Coast Guard is embarking on a significant operational change with its planned consolidation from a largely MH-65D/E helicopter fleet to an all MH-60T fleet. This change will have implications across the Coast Guard enterprise to include how the helicopters interact with cutters. However, the Coast Guard has not completed analysis to support this approach. Assessing the type and number of helicopters it requires to meet its mission demands would help the Coast Guard determine whether the MH-60T helicopter is the best alternative for replacing MH-65D/E helicopter. Doing so can support its acquisition approach and ensure it has the necessary aircraft capability to execute its missions in the coming decades.

The Coast Guard is undertaking efforts to retain its workforce and address key vacancies. However, it has not determined the necessary number of aviation personnel and skills by position (aviators, maintainers, and rescue swimmers) to meet its growing mission demands—which may be higher or lower than the number of its authorized positions. By assessing and determining the staffing levels necessary to meet its growing aviation mission demands, the Coast Guard can better understand the resources it requires, including those for pilots, maintainers, and rescue swimmers.

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## Recommendations for Executive Action

We are making the following five recommendations to the Coast Guard.

The Commandant of the Coast Guard should establish procedures requiring the Coast Guard to uniformly collect and maintain air station readiness data. (Recommendation 1)

The Commandant of the Coast Guard should establish a process to regularly evaluate Coast Guard-wide air station readiness data. (Recommendation 2)

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The Commandant of the Coast Guard should assess the type of helicopters the Coast Guard requires to meet its mission demands, as part of an analysis of alternatives. (Recommendation 3)

The Commandant of the Coast Guard should assess the number of helicopters the Coast Guard requires to meet its mission demands, as part of a fleet mix analysis. (Recommendation 4)

The Commandant of the Coast Guard should assess and determine the aviation workforce levels it requires to meet its mission needs. (Recommendation 5)

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## Agency Comments and our Evaluation

We provided a draft of this report to DHS and the Coast Guard for review and comment. In its comments, reproduced in appendix IV, DHS concurred with all five of our recommendations and described the Coast Guard's actions to address them. DHS also provided technical comments, which we incorporated as appropriate.

In concurring with our two recommendations on the Coast Guard's planned transition to an all MH-60T helicopter fleet, DHS cited a 2020 RAND study as evidence it had already assessed the type and number of helicopters it needed to meet its mission demands. For example, we recommended the Coast Guard assess the type of helicopters it requires to meet its mission demands, as part of an analysis of alternatives. DHS noted that, based on a 2020 RAND study, the Coast Guard had found it should move towards greater medium range helicopter recovery capacity, as those aircraft provide favorable cost solutions and increased capability.

However, as we note in our report, the RAND study also supported the Coast Guard maintaining a mix of helicopter types. Specifically, the study identified a benefit to the Coast Guard having a fleet composed primarily of MH-60T helicopters along with sufficient short-range helicopters to complete certain missions, such as drug interdiction. However, the Coast Guard did not assess alternative helicopters to the MH-60T that may meet its cutter deployment demands. Notably, during our review, Coast Guard headquarters officials stated that the MH-60T program could benefit from assessing different helicopter types to guide its acquisition approach and address capability shortfalls before the introduction of a successor helicopter. In this way, the Coast Guard can benefit from further analysis as it examines how its helicopter fleet can best meet its mission demands in the coming decades. We maintain that this includes an analysis of alternatives and fleet mix analysis to determine the type and number of helicopters needed.

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We are sending copies of this report to the appropriate congressional committees and the Secretary of Homeland Security. In addition, the report is available at no charge on the GAO website at <https://www.gao.gov>.

If you or your staff members have any questions about this report, please contact Heather MacLeod at (202) 512-8777 or [macleodh@gao.gov](mailto:macleodh@gao.gov). Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributors to this report are listed in appendix V.

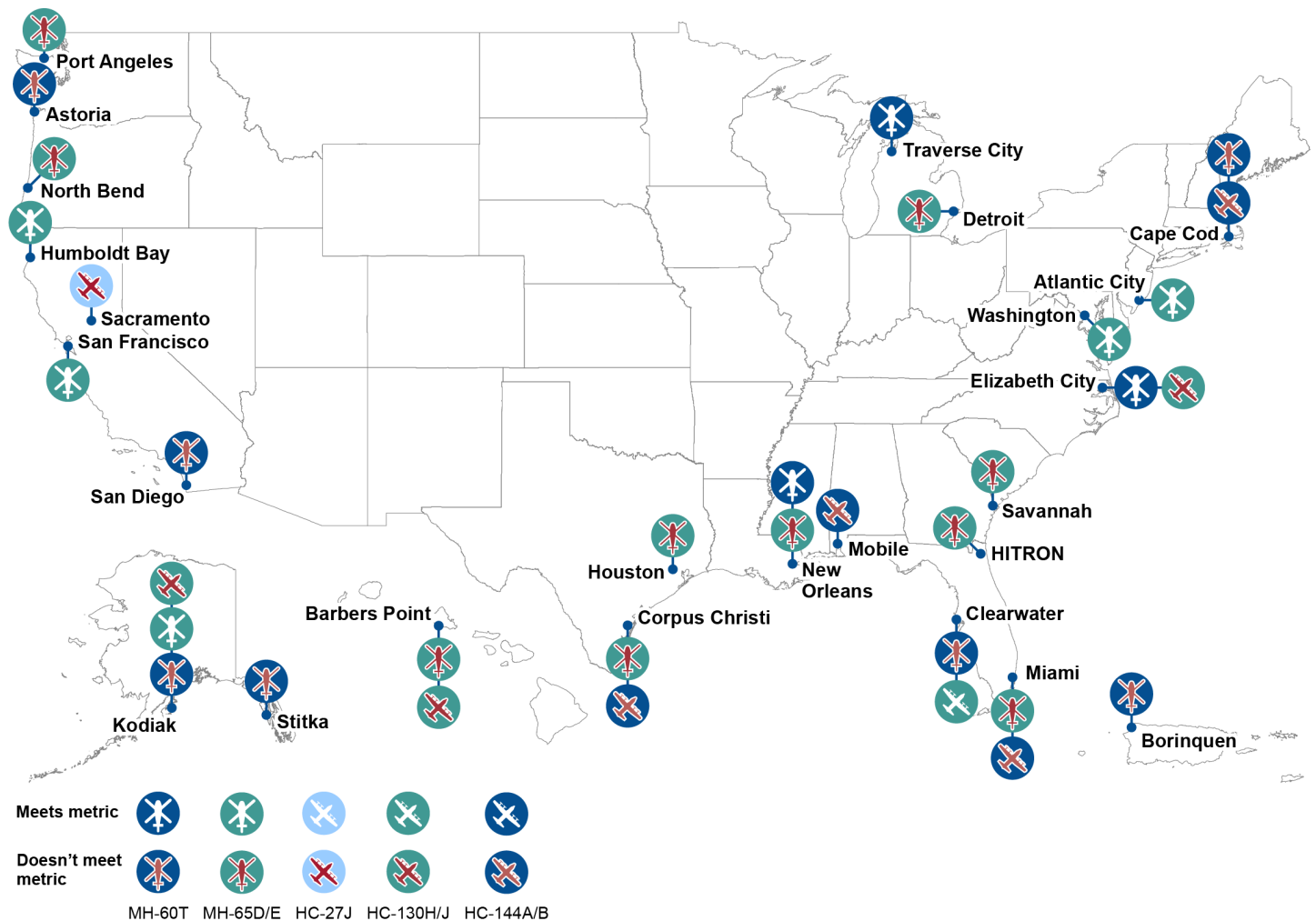
A handwritten signature in black ink, appearing to read "H MacLeod". The signature is stylized and cursive.

Heather MacLeod  
Director, Homeland Security and Justice Issues

# Appendix I: Coast Guard Aircraft Availability by Air Station for Fiscal Year 2022

This appendix presents the extent to which aircraft types at each of the Coast Guard's 25 air stations met the Coast Guard's 71 percent availability target in fiscal year 2022. Overall, our analysis of Coast Guard data showed that, at 16 of 25 air stations, none of the Coast Guard's aircraft types met the availability target. Of the remaining nine air stations, aircraft at five (all of which only operate one aircraft type) met availability targets, and at least one of the multiple aircraft types assigned to four other air stations met availability targets. See figure 14.

**Figure 14: Extent Coast Guard Aircraft at Air Stations Met Availability Target in Fiscal Year 2022, by Aircraft Type**



Source: GAO analysis of Coast Guard data; GAO (illustrations); U.S. Census Bureau (map). | GAO-24-106374

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**Appendix I: Coast Guard Aircraft Availability  
by Air Station for Fiscal Year 2022**

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Note: MH-60T is a medium-range recovery helicopter, MH-65D/E is a short-range recovery helicopter, HC-27J and HC-144A/B are medium-range surveillance aircraft, and HC-130H/J is a long-range surveillance aircraft.

According to the Coast Guard, the Helicopter Interdiction Tactical Squadron (HITRON) provides personnel, training, and resources necessary to employ armed helicopters in support of counter drug operations.



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# Appendix II: Coast Guard Aircraft Availability, by Aircraft Type, Fiscal Year 2018 through 2022

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This appendix presents aircraft availability metrics for each of the Coast Guard's five aircraft types for fiscal years 2018 through 2022. During this time, four of five aircraft types did not meet the availability target in any year.<sup>1</sup> The remaining aircraft met the availability target in fiscal years 2018 and 2019 but did not do so in fiscal years 2020 through 2022. Neither of the Coast Guard's two types of helicopters, the short-range (MH-65D/E) and medium-range (MH-60T), met the target in any year.

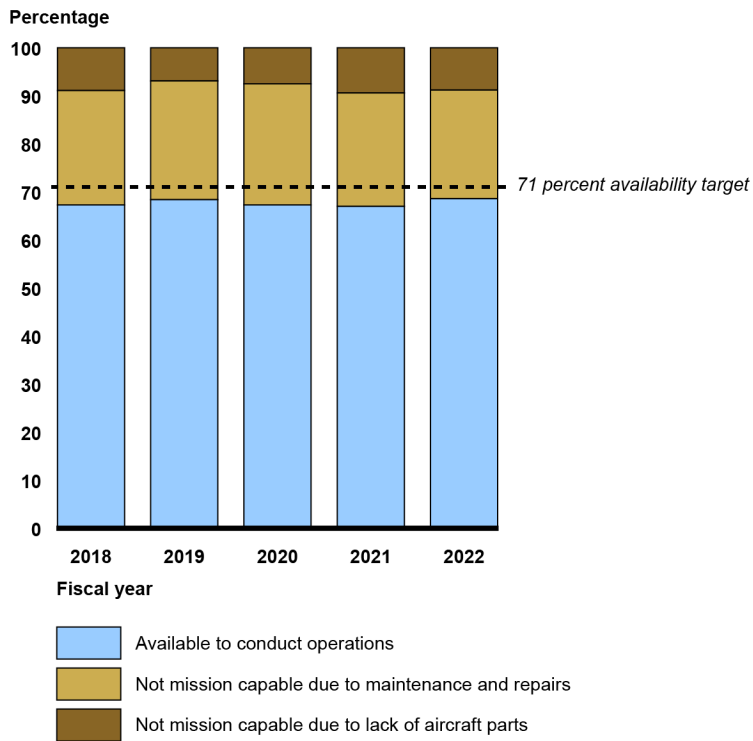
**Short-Range Recovery Helicopter (MH-65D/E).** The Coast Guard operated 98 short-range recovery helicopters (MH-65D/E) during fiscal years 2018 through 2022. As shown in figure 15, the MH-65D/E fleet did not meet the Coast Guard's 71 percent availability target in any year from fiscal year 2018 through 2022. According to Coast Guard data, the MH-65D/E fleet stayed below the 24 percent ceiling for aircraft time spent in maintenance and repair during most fiscal years. However, it exceeded the 5 percent ceiling for time waiting for parts to conduct repairs during each year.

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<sup>1</sup>According to Coast Guard policy, the Coast Guard targets its aircraft to be available to conduct missions at least 71 percent of time. The remaining 29 percent of the time is to account for aircraft not being mission capable due to maintenance and repair and lack of parts.

Appendix II: Coast Guard Aircraft Availability,  
by Aircraft Type, Fiscal Year 2018 through  
2022

**Figure 15: Short-Range Recovery Helicopter (MH-65D/E) Availability, Fiscal Years 2018 through 2022**

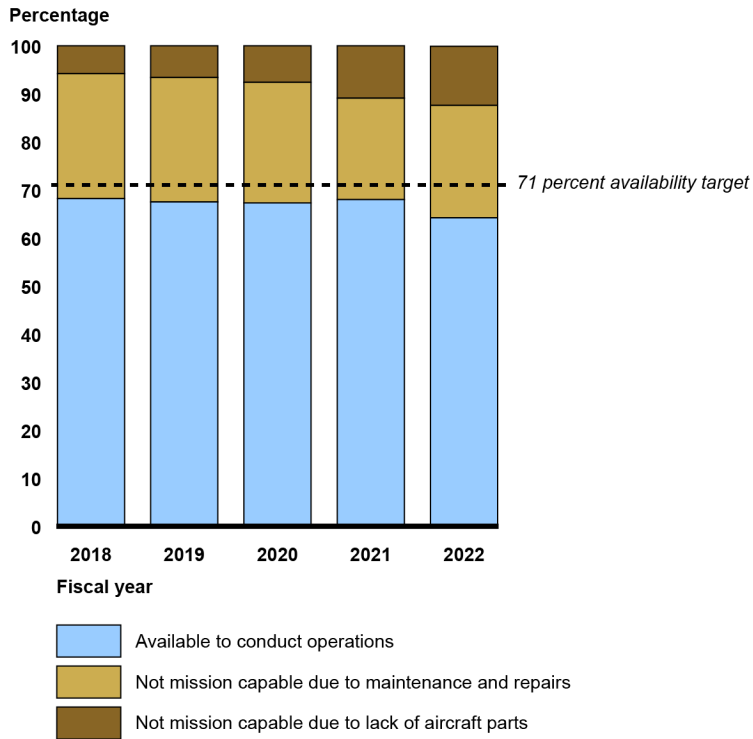


Source: GAO analysis of U.S. Coast Guard data. | GAO-24-106374

**Medium-Range Recovery Helicopter (MH-60T).** The Coast Guard operated 45 medium-range recovery helicopters (MH-60T) during fiscal years 2018 through 2021 and 48 during fiscal year 2022. As shown in figure 16, the MH-60T fleet did not meet the Coast Guard’s 71 percent availability target in any year from fiscal year 2018 through 2022. The aircraft stayed below the 24 percent ceiling for aircraft time spent in maintenance and repair during the last 2 years. However, it exceeded the 5 percent ceiling for time waiting for parts to conduct repairs during each year.

Appendix II: Coast Guard Aircraft Availability,  
by Aircraft Type, Fiscal Year 2018 through  
2022

**Figure 16: Medium-Range Recovery Helicopter (MH-60T) Availability, Fiscal Years 2018 through 2022**

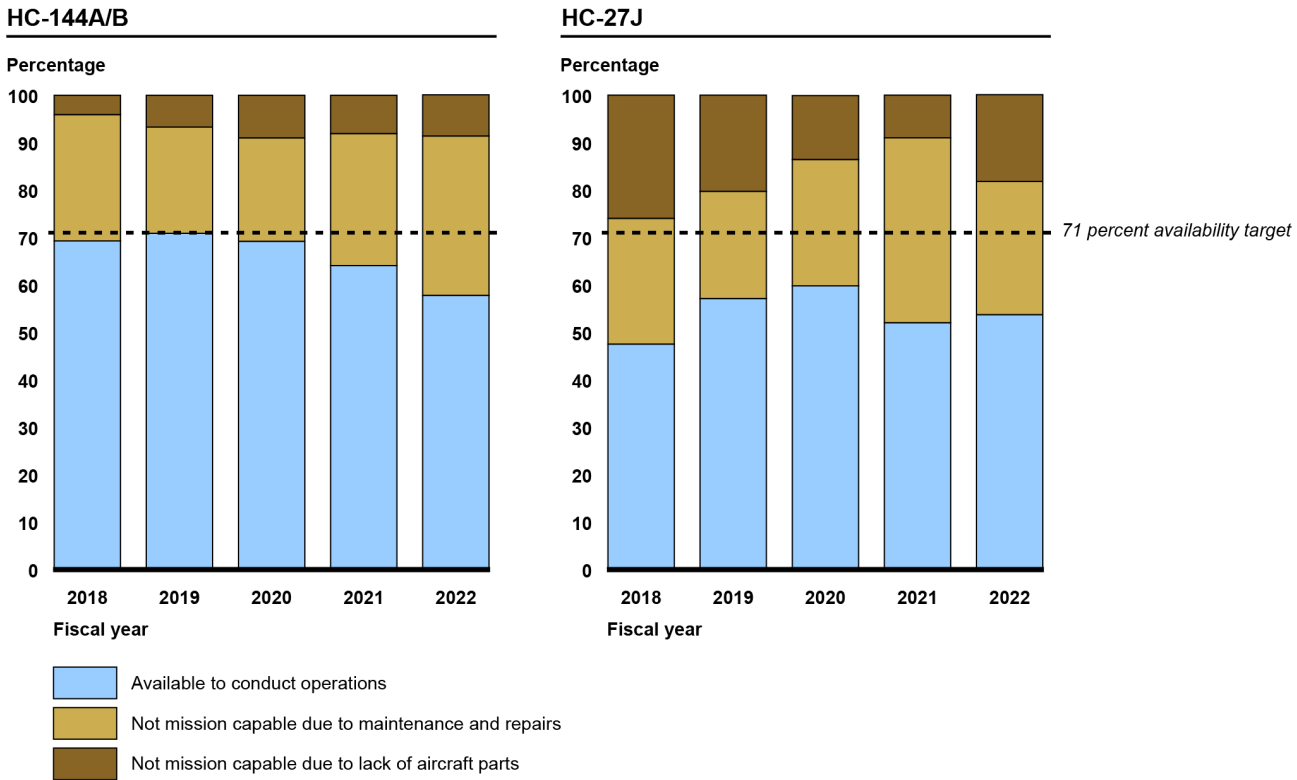


Source: GAO analysis of U.S. Coast Guard data. | GAO-24-106374

**Medium-Range Surveillance Aircraft (HC-144A/B and HC-27J).** The Coast Guard operated 32 medium-range surveillance aircraft—18 HC-144A/B and 14 HC-27J—during fiscal years 2018 through 2022. As shown in figure 17, these aircraft types did not meet the Coast Guard’s 71 percent availability target in any year from fiscal year 2018 through 2022. Both aircraft types exceeded the 24 percent ceiling for aircraft time spent in maintenance and repair during the majority of these years. Further, they also generally exceeded the 5 percent ceiling for time waiting for parts to conduct repairs during this time frame. Specifically, only the HC-144A/B met this threshold during fiscal year 2018.

Appendix II: Coast Guard Aircraft Availability,  
by Aircraft Type, Fiscal Year 2018 through  
2022

Figure 17: Medium-Range Surveillance Aircraft (HC-144A/B and HC-27J) Availability, Fiscal Years 2018 through 2022



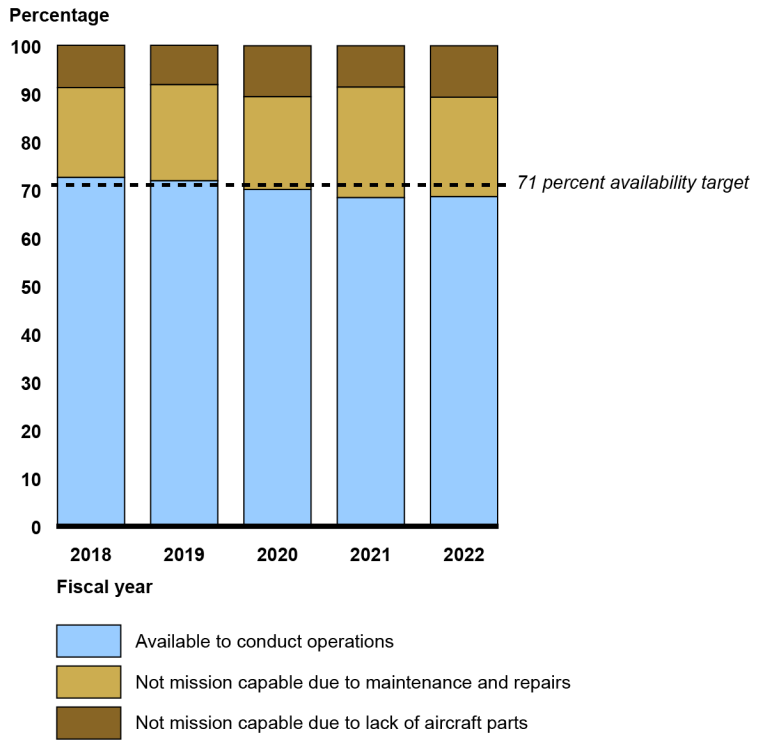
Source: GAO analysis of U.S. Coast Guard data. | GAO-24-106374

**Long-Range Surveillance Aircraft (HC-130H/J).** The number of long-range surveillance aircraft (HC-130H/J) the Coast Guard operated during fiscal years 2018 through 2022 ranged from 26 to 31 aircraft.<sup>2</sup> The HC-130H/J met the Coast Guard’s availability target in fiscal years 2018 and 2019 but did not do so in fiscal years 2020 through 2022, as shown in figure 18. The aircraft stayed below the 24 percent ceiling for aircraft time spent in maintenance and repair during each year but exceeded the 5 percent ceiling for time waiting for parts to conduct repairs during each year.

<sup>2</sup>Specifically, the Coast Guard operated 26 aircraft in fiscal year 2018, 33 in fiscal year 2019, 32 in fiscal year 2020, 34 in fiscal year 2021, and 28 in fiscal year 2022. The Coast Guard is acquiring new HC-130J aircraft and transferring older assets to other agencies. As such, the number of these aircraft has varied over the years.

Appendix II: Coast Guard Aircraft Availability,  
by Aircraft Type, Fiscal Year 2018 through  
2022

**Figure 18: Long-Range Surveillance Aircraft (HC-130H/J) Availability, Fiscal Years 2018 through 2022**



Source: GAO analysis of U.S. Coast Guard data. | GAO-24-106374

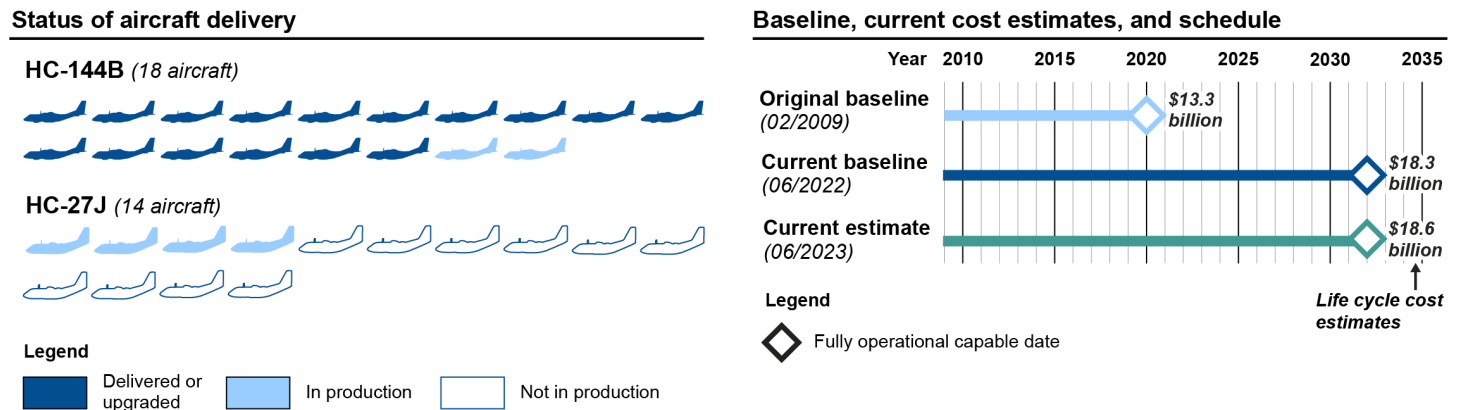
# Appendix III: Status of Coast Guard's Four Acquisition Programs for Aviation

This appendix presents the status of the Coast Guard's four aircraft acquisition programs, by schedule and cost. As of January 2024, all four of the Coast Guard's aircraft modernization programs were generally meeting their approved cost and schedule baselines. The four programs are the medium-range surveillance aircraft (HC-144B/HC-27J), long-range surveillance aircraft (HC-130J), short-range recovery helicopter (MH-65E), and the medium-range recovery helicopter (MH-60T).

## Medium-Range Surveillance Aircraft (HC-144B and HC-27J) Modernization

The program, which established its initial acquisition program baseline in 2009, is currently upgrading 32 aircraft—18 HC-144A/B and 14 HC-27J—with a new mission system processor to enhance usability and sensor management. All 32 aircraft are twin-engine, propeller-driven platforms with interiors that can be reconfigured to accommodate cargo, personnel, or medical transport as needed. Both aircraft provide the ability to increase time on patrol. See figure 19 for the status of the HC-144B/HC-27J modernization program.

**Figure 19: Status of Medium-Range Surveillance Aircraft (HC-144B/HC-27J) Modernization Program as of January 2024**



Source: GAO analysis of Coast Guard acquisition information; GAO (illustrations). | GAO-24-106374

**Status.** As of January 2024, the Coast Guard has upgraded 16 of 18 HC-144A to HC-144B. The two remaining HC-144As are currently being upgraded. The Coast Guard expects to have all 18 upgraded to HC-144Bs and delivered to the fleet by fiscal year 2025.

As of January 2024, the Coast Guard was in the process of upgrading four HC-27Js, and 10 HC-27Js have yet to begin their upgrades,

remaining with the fleet. The Coast Guard expects to have all 14 HC-27Js upgraded and delivered to the fleet by fiscal year 2032.

**Schedule.** Overall, the program has delayed the delivery date for receiving all modernized aircraft by 12 years from the initial acquisition program baseline date. The Coast Guard revised the baseline of the program and, as a result, both aircraft in the program are within current schedule baselines, as of January 2024. The Coast Guard established the program to obtain 36 HC-144As in 2009 with an expected completion date of fiscal year 2020. In 2016, the Coast Guard restructured the acquisition program to account for the 14 HC-27Js that the U.S. Air Force transferred to the service. It baselined the combined acquisition with a completion date of fiscal year 2025. In June 2022, the program moved its full operational capability date to fiscal year 2032.<sup>1</sup> This change was due to contracting delays associated with installing new mission systems on the HC-27Js, among other things.<sup>2</sup>

**Cost.** The current acquisition program baseline cost for the medium-range surveillance aircraft program has increased above the originally approved cost estimates. The Coast Guard restructuring of the program to incorporate the HC-27J and later changes to the methodology used to calculate the aircrafts' anticipated service life are among the reasons the cost baselines increased from approximately \$13.3 to \$18.3 billion between fiscal years 2009 and 2022. As of January 2024, both aircraft remain within their cost baselines.

### **Long-Range Surveillance Aircraft (HC-130J) Modernization**

The program, which originally established its initial acquisition program baseline in fiscal year 2012, is currently acquiring 22 aircraft with advanced engines, propellers, and other equipment to enhance speed, altitude, and range compared to the HC-130H. The program is also installing a new mission system to enhance operator interface and sensor management and replace obsolete equipment. Initially, the program

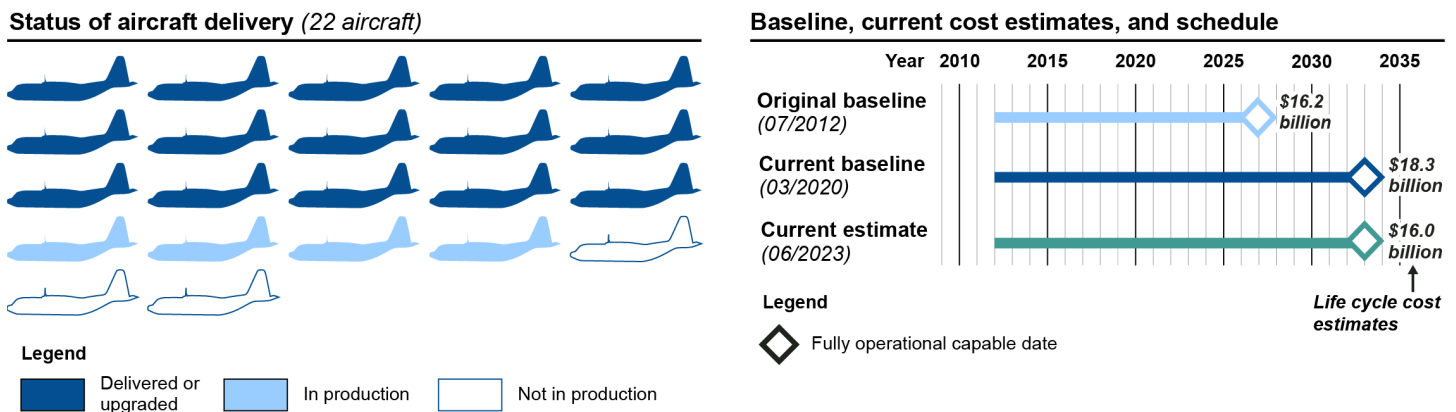
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<sup>1</sup>According to DHS policy, if a program fails to meet any cost, schedule, or performance threshold approved in the Acquisition Program Baseline, it is considered to be in breach. Programs in breach status are required to notify their acquisition decision authority and develop a remediation plan that outlines a time frame for the program to either return to its Acquisition Program Baseline parameters, re-baseline (i.e., establish new cost, schedule, or performance goals), or have a DHS-led program review that results in recommendations for a revised baseline.

<sup>2</sup>According to the Coast Guard, these systems include sensors, radar and command, control, communications, computers, cyber, intelligence, surveillance and reconnaissance equipment.

aimed to maintain and upgrade the HC-130H and replace it with the HC-130J as the latter came into service. Currently, the program is pursuing an all HC-130J fleet rather than continue to extend the service life of its HC-130H aircraft. See figure 20 for the status of HC-130J modernization program.

Figure 20: Status of Long-Range Surveillance Aircraft (HC-130J) Modernization Program, as of January 2024



Source: GAO analysis of Coast Guard acquisition information; GAO (illustrations). | GAO-24-106374

**Status.** As of January 2024, 15 of 22 HC-130Js have been delivered, and four are in production.<sup>3</sup> The Coast Guard intends to reach full operational capability by fiscal year 2033.

**Schedule.** Overall, the program has delayed the delivery date for receiving all modernized aircraft by 6 years from the originally approved date. The Coast Guard changed the full operational capability date from fiscal years 2027 to 2033. This is because the Coast Guard has prioritized funding requests for ship programs, such as the Offshore Patrol Cutter. As of January 2024, the program remains within scheduled baselines.

**Cost.** The program's total life cycle cost threshold increased by approximately \$2 billion from its fiscal year 2012 baseline (\$16.2 billion) to its current baseline (\$18.3 billion). Specifically, the program's operations and support cost threshold increased by nearly \$2.5 billion, due to extending the service life of HC-130J from 30 to 37.5 years.

<sup>3</sup>The fixed-wing aircraft are delivered from the manufacturer as C-130Js and receive their "H" designation after receiving the new mission systems. According to the Coast Guard, these systems include sensors, radar and command, control, communications, computers, cyber, intelligence, surveillance, and reconnaissance equipment.

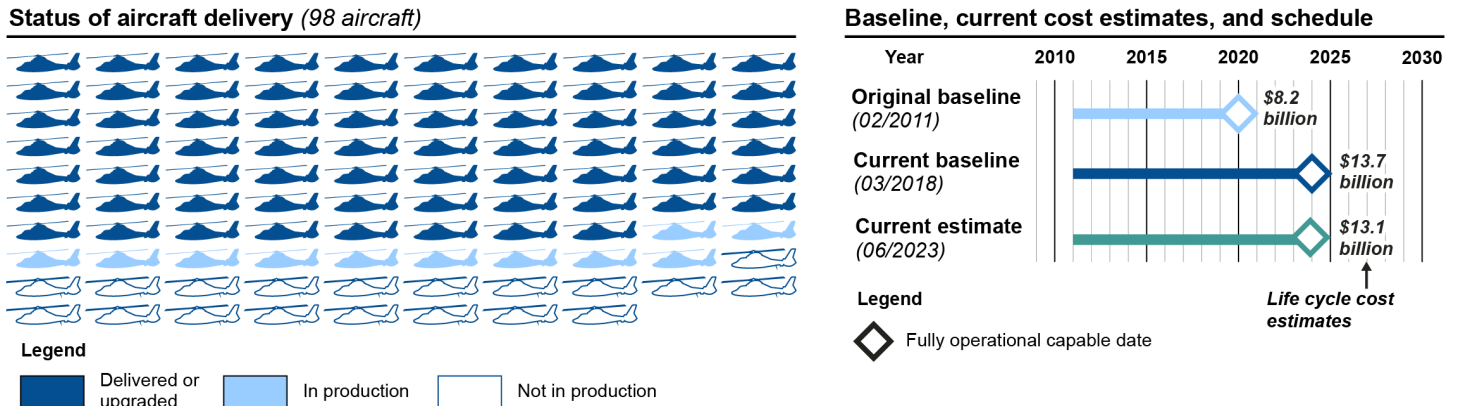


Nevertheless, the 2023 life cycle cost estimate remains under its current baseline.

### Short-Range Recovery Helicopter (MH-65E) Service Life Extension and Modernization

The program, which established its initial acquisition program baseline in 2011, has replaced obsolete components and modified the helicopters to conduct airborne use of force (e.g., accommodation for weapons and armor), among other changes. Currently, the program is extending the helicopter's service life and upgrading the automatic flight control system and avionics.<sup>4</sup> See figure 21 for the status of MH-65E modernization program.

**Figure 21: Status of Short-Range Recovery Helicopter (MH-65E) Modernization Program, as of January 2024**



Source: GAO analysis of Coast Guard acquisition information; GAO (illustrations). | GAO-24-106374

**Status.** In January 2024, Coast Guard officials reported that 68 of 98 MH-65Ds had been converted to MH-65Es with upgrades to the automatic flight control system and avionics completed. Eleven MH-65Ds are receiving modifications associated with the service life extension program and upgrades. Nineteen MH-65Ds remain with the fleet and have not yet been upgraded. The Coast Guard plans to reach full operational capability by September 2024.

<sup>4</sup>Avionics is a category of electronic systems and equipment specifically designed for use in aviation. The avionics installed in an aircraft can include engine controls, flight control systems, navigation, communications, flight recorders, lighting systems, threat detection, fuel systems, and systems that carry out other mission and flight management tasks.

**Schedule.** Overall, the program has delayed the delivery date for receiving all upgraded helicopters by 4 years from the originally approved date of fiscal year 2020 to 2024. This is because the program restructured its schedule to synchronize the service life extension program with upgrades to the automatic flight control system and avionics to occur during the same scheduled maintenance period for each aircraft. As of January 2024, the program remains within schedule baselines.

**Cost.** The cost for the short-range recovery helicopter program has increased above the originally approved cost estimates. The program's life-cycle cost estimate increased approximately \$5 billion from its original estimate because of the Coast Guard's decision to extend the aircraft's operational life by 9 years, from fiscal year 2030 to 2039. As of January 2024, the program remains within its current baseline costs.

### **Medium-Range Recovery Helicopter (MH-60T) Service Life Extension and Growth**

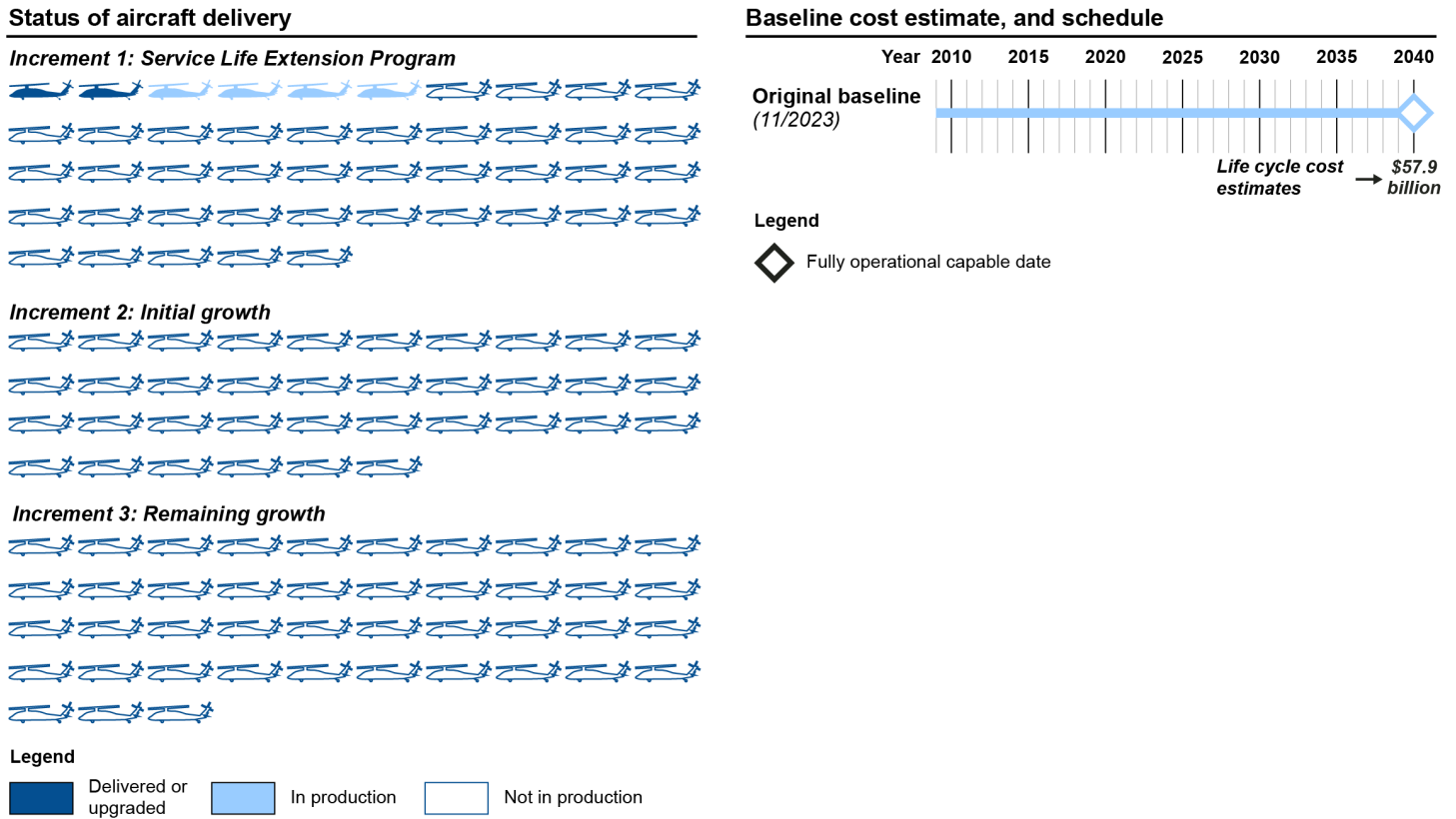
The program aims to extend the helicopter's service life and grow the fleet size from 48 to at least 127 in three increments. In November 2023, the Department of Homeland Security (DHS) approved the cost and schedule baselines for part of the medium-range recovery helicopter program.<sup>5</sup> Specifically, DHS approved the service life extension of 45 medium-range MH-60T helicopters, currently in the fleet, through the late 2040s (increment 1) and the acquisition of additional 36 hulls (increment 2). DHS expects to approve the last phase of the program (increment 3) in fiscal year 2027.<sup>6</sup> The Coast Guard is currently implementing the service life extension phase of the program. See figure 22 for the status of MH-60T Service Life Extension program.

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<sup>5</sup>The Coast Guard will implement program for MH-60T in three increments. In November 2023, DHS approved baseline for two increments.

<sup>6</sup>The Service Life Extension Program includes 45 helicopters. Three helicopters were procured with funding from the Fiscal Year 2018 Hurricane Supplemental and are not part of the Service Life Extension Program.

Figure 22: Status of Medium-Range Recovery Helicopter (MH-60T) Service Life Extension and Growth, as of January 2024



Source: GAO analysis of Coast Guard acquisition information; GAO (illustrations). | GAO-24-106374

**Status.** The Coast Guard is currently implementing the service life extension of existing helicopters (increment 1). As of January 2024, two of the 45 aircraft had completed the service life extension program, and the process for four aircraft was underway.<sup>7</sup> According to Coast Guard acquisition documentation, the Coast Guard expects to complete the service life extension of the existing fleet by fiscal year 2032.

**Schedule.** In November 2023, the Coast Guard established schedules for increments 1 and 2, which set completion for the service life extension program by the fiscal year 2032 and for the acquisition of 36 hulls by

<sup>7</sup>According to the Coast Guard, the original manufacturer provides a hull, and the Coast Guard installs the necessary components such as digital cockpit to complete the helicopter.

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**Appendix III: Status of Coast Guard's Four  
Acquisition Programs for Aviation**

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fiscal year 2034. DHS has not approved a schedule for the third increment yet.

**Cost.** In November 2023, DHS approved cost estimates for this program. The life cycle cost estimate for the MH-60T program is approximately \$58 billion.

# Appendix IV: Comments from the Department of Homeland Security

U.S. Department of Homeland Security  
Washington, DC 20528



**Homeland  
Security**

March 21, 2024

Heather MacLeod  
Director, Homeland Security and Justice Issues  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548-0001

Re: Management Response to Draft Report GAO-24-106374, "COAST GUARD:  
Aircraft Fleet and Aviation Workforce Assessments Needed"

Dear Ms. MacLeod:

Thank you for the opportunity to comment on this draft report. The U.S. Department of Homeland Security (DHS, or the Department) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

DHS leadership is pleased to note GAO's recognition of U.S. Coast Guard efforts to modernize its aircraft to help support its many missions, while meeting approved cost and schedule baselines. GAO also highlighted that one of these efforts aims to consolidate the Coast Guard fleet from 98 short-range and 48 medium-range helicopters to an all medium-range helicopter fleet.

The Coast Guard remains committed to ensuring its aircraft fleet and aviation workforce capabilities meet its varied and growing mission demands for safeguarding the American people and promoting national security, border security, and economic prosperity in a complex and evolving maritime environment.

The draft report contained five recommendations with which the Department concurs. Enclosed find our detailed response to each recommendation. DHS previously submitted technical comments addressing several accuracy, contextual, and other issues under a separate cover for GAO's consideration.

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**Appendix IV: Comments from the Department  
of Homeland Security**

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Again, thank you for the opportunity to review and comment on this draft report. Please feel free to contact me if you have any questions. We look forward to working with you again in the future.

Sincerely,

JIM H CRUMPACKER Digitally signed by JIM H  
CRUMPACKER  
Date: 2024.03.21 15:09:28 -0400'

JIM H. CRUMPACKER  
Director  
Departmental GAO-OIG Liaison Office

Enclosure

**Enclosure: Management Response to Recommendations  
Contained in GAO-24-106374**

GAO recommended that the Commandant of the U.S. Coast Guard:

**Recommendation 1:** Establish procedures requiring the Coast Guard to uniformly collect and maintain air station readiness data.

**Response:** Concur. The Deputy Commandant for Operations Planning and Integration Division (DCO-51) released the operational reporting direction plan, “FY24 Operational Reporting Direction,” dated January 17, 2024, which will be implemented in three phases and provides required steps to highlight individual unit readiness. Phase one was completed in January 2024 with the release of the operational reporting direction plan, and Phase two consists of monitoring and learning to capture service risk during the second quarter of fiscal year (FY) 2024. Phase three will be to promulgate an updated operational reporting policy within COMDTINST M3123.13, “Operational Reporting Manual,” dated April 17, 2014.<sup>1</sup> Estimated Completion Date (ECD): December 31, 2024.

**Recommendation 2:** Establish a process to regularly evaluate Coast Guard wide air station readiness data.

**Response:** Concur. On June 31, 2023, the Coast Guard Office of Planning, Integration, and Workforce Support (DCO-5) developed a risk dashboard that populates data from the Asset Logistics Management Information System when units log, “Unable to Meet Mission Requirement.” The dashboard shows indicators of risk to readiness, including personnel and asset degradation, and routine evaluation is conducted by various Coast Guard programs and offices, including DCO-5, to inform senior-level decision making. DHS requests that GAO consider this recommendation resolved and closed, as implemented.

**Recommendation 3:** Assess the type of helicopters the Coast Guard requires to meet its mission demands, as part of an analysis of alternatives.

**Response:** Concur. On February 25, 2020, the Coast Guard Office of Requirements and Analysis (CG-771) completed a Rotary Wing Force Structure Analysis that summarized the report titled “Meeting U.S. Coast Guard Airpower Needs: Assessing the Options, dated April 21, 2020.<sup>2</sup> Based on this analysis, CG-771 found that the Coast

<sup>1</sup> [https://media.defense.gov/2017/Mar/28/2001723005/-1/-1/0/CIM\\_3123\\_13.PDF](https://media.defense.gov/2017/Mar/28/2001723005/-1/-1/0/CIM_3123_13.PDF)

<sup>2</sup> Meeting U.S. Coast Guard Airpower Needs, 31 April 2020,  
[https://www.rand.org/pubs/research\\_reports/RR3179.html](https://www.rand.org/pubs/research_reports/RR3179.html)

**Appendix IV: Comments from the Department of Homeland Security**

Guard should move towards greater medium range recovery capacity, as these aircraft provide favorable cost solutions and increased capability. DHS requests that GAO consider this recommendation be resolved and closed, as implemented.

**Recommendation 4:** Assess the number of helicopters the Coast Guard requires to meet its mission demands, as part of a fleet mix analysis.

**Response:** Concur. As part of the Rotary Wing Force Structure Analysis, the Coast Guard Office of Aviation Forces (CG-711) also coordinated with CG-771 to determine that the Coast Guard requires a minimum all H-60 fleet of 127 aircraft. DHS requests that GAO consider this recommendation resolved and closed, as implemented.

**Recommendation 5:** Assess and determine the aviation workforce levels it requires to meet its mission needs.

**Response:** Concur. The Office of Manpower Requirements Determinations (CG-DPR-24) will begin a Manpower Requirements Analysis and subsequent Manpower Requirements Determination (MRD) in May 2024 for all Air Stations. The study will include the following phases:

<b>Actions</b>	<b>ECD</b>
Phase 1 – Kick-off	June 28, 2024
Phase 2 – Familiarization	October 31, 2024
Phase 3 – Data Collection	April 30, 2025
Phase 4 – Modeling	July 31, 2025
Phase 5 – Finalize MRD	October 31, 2025

Overall ECD: October 31, 2025.



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# Appendix V: GAO Contact and Staff Acknowledgments

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**GAO Contact:**

Heather MacLeod, (202) 512-8777 or [MacLeodH@gao.gov](mailto:MacLeodH@gao.gov)

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**Staff****Acknowledgements:**

In addition to the contact above, Jason Berman (Assistant Director), Marycella Mierez (Analyst-in-Charge), Nasreen Badat, John Bumgarner, John Crawford, Kathleen Donovan, Angie Nichols Friedman, Eric Hauswirth, Richard (Giff) Howland, Claire Li, Camilla Ma, Amanda Miller, and Sasan (Jon) Najmi, made key contributions to this report.

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