

## Why GAO Did This Study

According to DOD, its U.S. infrastructure is vulnerable to the potential impacts of climate change. These could affect DOD's readiness and fiscal exposure, and DOD has begun to plan for adaptation actions designed to improve infrastructure resilience. GAO was asked to assess DOD's actions to adapt its U.S. infrastructure to the challenges of climate change. This report (1) describes potential impacts identified by DOD that may affect its infrastructure; (2) evaluates DOD's efforts to conduct vulnerability assessments; (3) assesses how DOD is accounting for climate change impacts in certain planning efforts; and (4) evaluates the extent to which DOD incorporates adaptation into its infrastructure-investment efforts. GAO reviewed DOD documents on climate change, infrastructure planning, and funding processes; interviewed cognizant officials; and visited or contacted a nongeneralizable sample of 15 sites in various regions and from each military department.

## What GAO Recommends

GAO recommends that DOD develop a plan and milestones for completing climate change vulnerability assessments of installations; provide further information to installation planners, clarifying actions that should be taken to account for climate change in planning documents; and clarify the processes used to compare military construction projects for funding, to include consideration of potential climate change impacts. DOD concurred with GAO's recommendations and explained how they will be implemented.

View [GAO-14-446](#) with a video of flooding at a DOD installation. For more information, contact Brian J. Lepore at (202) 512-4523 or [leporeb@gao.gov](mailto:leporeb@gao.gov).

## CLIMATE CHANGE ADAPTATION

### DOD Can Improve Infrastructure Planning and Processes to Better Account for Potential Impacts

## What GAO Found

In its Fiscal Year 2012 Climate Change Adaptation Roadmap, the Department of Defense (DOD) identified climate change phenomena such as rising temperatures and sea levels as potentially impacting its infrastructure, and officials at sites GAO visited or contacted noted actual impacts they had observed. For example, according to DOD officials, the combination of thawing permafrost, decreasing sea ice, and rising sea levels on the Alaskan coast has increased coastal erosion at several Air Force radar early warning and communication installations. Impacts on DOD's infrastructure from this erosion have included damaged roads, seawalls, and runways. In addition, officials on a Navy installation told GAO that sea level rise and resulting storm surge are the two largest threats to their waterfront infrastructure. For instance, they are concerned about possible storm surge during work on a submarine that will be cut in half while sitting in a dry dock. Officials explained that if salt water floods the submarine's systems, it could result in severe damage.

DOD has begun to assess installations' vulnerability to potential climate change impacts and directed its planners to incorporate consideration of climate change into certain installation planning efforts. Further, it is a DOD strategic goal to consider sustainability, including climate change adaptation, in its facility investment decisions. However, GAO identified some limitations with these efforts. Specifically:

- DOD has begun collecting data on historic and potential future vulnerabilities from coastal locations (installations and associated sites) and is developing regional sea-level rise scenarios for 704 coastal locations to be used following the collection of these data. However, it has not yet developed a plan or milestones for completing these tasks, including when it expects to finish data collection on a total of 7,591 locations worldwide. Without a plan, including interim milestones to gauge progress, DOD may not finish its assessments in a timely and complete manner.
- DOD guidance requires that both installation master planning and natural resources planning account for certain potential impacts of climate change, but the implementation of these requirements across the department varies. Installation planners said that they lack key definitions and updated guidance on construction and renovation going beyond current building codes to account for climate change. Without additional information, installation planners will be unlikely to consistently account for climate change impacts in their Master Plans and Integrated Natural Resources Management Plans.
- Installation officials rarely propose climate change adaptation projects because the services' processes for approving and funding military construction projects do not include climate change adaptation in the criteria used to rank potential projects. As a result, installation planners may believe that climate change adaptation projects are unlikely to successfully compete with other military construction projects for funding. Without clarification of these processes, DOD may face challenges in meeting its strategic goals and the services may miss opportunities to make their facilities more resilient to the potential impacts of climate change.