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Climate Change Adaptation: Department of Commerce

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Climate Change Adaptation: Department of Commerce

Climate change affects the mission and programs of the Department of Commerce (DOC) and its agencies, and these effects are likely to continue. DOC's wide-ranging responsibilities include trade enforcement, economic development, innovation support, entrepreneurship and business development, standard setting, environmental monitoring, weather forecasting, marine resources management, and statistical research and analysis.

Congress has considered and may continue to consider how climate change may affect the mission and programs of DOC and its agencies. *Climate change adaptation* includes “adjustments to natural or human systems in response to actual or expected climate change, including increases in the frequency or severity of weather-related disasters.”

Congressional and Executive Branch Direction on Climate Change for DOC and Its Agencies

To date, executive orders and other presidential documents have prompted much of the DOC department-level climate change adaptation activities. Several executive orders since 2009 have directed DOC and other departments on climate change adaptation activities. During his term, President Donald Trump issued executive orders to revoke most of President Barack Obama's orders related to climate change adaptation. In January 2021, President Joe Biden revoked some of President Trump's executive orders, effectively reinstating several of President Obama's executive orders. President Biden's orders also include new directives related to climate change adaptation.

At the agency level, Congress and various Administrations have directed one DOC agency—the National Oceanic and Atmospheric Administration (NOAA)—to support or implement most DOC climate change adaptation activities. NOAA carries out these activities primarily through supporting research on climate change, its effects, and potential adaptation to the effects, as well as through collecting and sharing climate change data and information. Congress and various Administrations also have directed other DOC agencies, such as the Economic Development Administration, International Trade Administration, National Institute for Standards and Technology, and U.S. Patent and Trademark Office, to carry out some climate change adaptation activities.

Potential Issues for Consideration

Congress may consider various issues in relation to DOC's climate change adaptation activities. For example, there are currently few evaluations of existing DOC climate change adaptation responsibilities, appropriations, and spending, including how activities and spending are prioritized. Congress also may consider adjusting DOC or agency appropriation amounts for adaptation activities relative to their benefits and congressional priorities.

Additionally, Congress may weigh whether to

- codify or modify directives under new or recently reinstated executive orders;
- define *climate change adaptation* or similar terms in statute;
- require agency climate change adaptation strategies to supplement those mandated in executive order provisions;
- direct priorities for producing, collecting, and sharing adaptation information; and
- alter financial assistance authorities that support adaptation, among other issues.

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Climate change affects the mission and programs of the Department of Commerce (DOC) and its agencies, and these effects are likely to continue. Congress authorizes and funds DOC's missions and programs, which are wide-ranging, with relevance to trade enforcement, economic development, innovation support, entrepreneurship and business development, standard setting, environmental monitoring, weather forecasting, marine resources management, and statistical research and analysis

Given the diversity of DOC's responsibilities, how climate change may affect DOC and its activities varies. For example,

- DOC supports U.S. commerce. Various sectors of U.S. commerce depend on natural resources that are vulnerable to climate change impacts; these sectors include agriculture, recreation, tourism, and fisheries.¹
- DOC supports U.S. trade. Climate change is expected to have increasing effects on U.S. trade considerations, including import and export prices, and on the nation's built infrastructure, such as energy and transportation systems.²
- DOC supports U.S. communities and ecosystems. For example, coastal communities and ecosystems are threatened by sea-level rise and storm surge.³

Congress has considered and may continue to consider how climate change may affect DOC and its agencies' mission and programs. For a discussion of how climate change adaptation activities were defined and tracked in this report, see the shaded text box entitled "Defining and Tracking Climate Change Adaptation Activities at the Department of Commerce" below.

This report provides an overview of selected DOC statutory authorities, executive orders, and departmental and agency guidance related to climate change adaptation activities. Each section contains a brief background of the department or agency and an overview of its climate change adaptation activities. The report also presents information on DOC spending on climate change adaptation where available. The last section of the report discusses potential issues for Congress to consider related to climate change adaptation activities and spending. This report is not intended to be a comprehensive review of DOC's climate change activities—the information should be considered illustrative rather than exhaustive.

Defining and Tracking Climate Change Adaptation Activities at the Department of Commerce

Congress has not defined the term *climate change adaptation* for the Department of Commerce (DOC) and its agencies. Definitions of what constitute *climate change adaptation activities* vary among stakeholders and typically encompass many different activities at the federal, state, local, and individual levels. For instance, a 2016 Government Accountability Office (GAO) report defined *climate change adaptation* to include "adjustments to natural or human systems in response to actual or expected climate change, including increases in the frequency or severity of weather-related disasters." This definition is used in this report.

GAO also defined the terms *resilience* and *hazard mitigation*, opining that "adaptation is synonymous with enhancing resilience." GAO uses the National Academies' definition of *resilience*: "the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events." According to GAO, two related sets of action that

¹ U.S. Global Change Research Program (USGCRP), *Impacts, Risk, and Adaptation in the United States: Fourth National Climate Assessment*, vol. 2, 2018, p. 25 (hereinafter USGCRP, *NCA4*, vol. 2). Congress established USGCRP as an interagency mechanism to develop and coordinate a "comprehensive and integrated" United States research program to assess, predict, and respond to "human-induced and natural processes of global change" (15 U.S.C. §2931(b)).

² USGCRP, *NCA4*, vol. 2, pp. 25-26 and 30.

³ USGCRP, *NCA4*, vol. 2, p. 31. USGCRP further states that "more than half of the damages to coastal property are estimated to be avoidable through well-timed adaptation measures."

can enhance resilience by reducing risk include *hazard mitigation* (“actions taken to reduce loss of life and property by lessening the impacts of adverse events”) and *climate change adaptation*. Some entities may distinguish among these three terms; others may use them interchangeably.

Understanding the breadth of climate change adaptation activities at DOC is difficult for a number of reasons. In addition to the differences in terminology and definitions among stakeholders, agencies may support or implement climate change adaptation activities under various authorities without explicitly describing or formally associating these activities with climate change adaptation. As such, climate change adaptation activities at the DOC and its agencies, and information available about these activities, vary from agency to agency.

Sources: GAO, *Climate Change: Selected Governments Have Approached Adaptation Through Laws and Long-Term Plans*, GAO-16-454, May 2016; and GAO, *Climate Change Adaptation: DOD Needs to Better Incorporate Adaptation into Planning and Collaboration at Overseas Installations*, GAO-18-206, December 2017, p. 1.

Department of Commerce

DOC comprises 11 agencies, in addition to the offices of the DOC Under Secretary and Secretary. DOC’s self-stated mission is to “create the conditions for economic growth and opportunity.” As noted above, the department has wide-ranging responsibilities (**Table 1**). In FY2021, Congress appropriated over \$8.9 billion to support DOC mission areas and facilities.⁴

Table 1. Department of Commerce (DOC) Agencies, Missions, and FY2021 Appropriations

DOC Agency	Mission	FY2021 Appropriations
Bureau of Industry and Security (BIS)	“advance U.S. national security, foreign policy, and economic objectives by ensuring an effective export control and treaty compliance system and promoting continued U.S. strategic technology leadership”	\$133.0 million
Economic Development Administration (EDA)	“lead the federal economic development agenda by promoting innovation and competitiveness, preparing American regions for growth and success in the worldwide economy”	\$346.0 million
Economics and Statistics Administration (ESA), comprised of the Bureau of Economic Analysis (BEA) and the Census Bureau	BEA: “promotes a better understanding of the U.S. economy by providing the most timely, relevant, and accurate economic accounts data in an objective and cost-effective manner” Census Bureau: “to serve as the nation’s leading provider of quality data about its people and economy”	\$1,218.5 million
International Trade Administration (ITA)	“create prosperity by strengthening the international competitiveness of U.S. industry, promoting U.S. trade and investment, and ensuring fair trade and compliance with trade laws and agreements”	\$530.0 million
Minority Business Development Agency (MBDA)	“promotes the growth and global competitiveness of minority-owned enterprises”	\$48.0 million
National Institute of Standards and Technology (NIST)	“promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.”	\$1,034.5 million

⁴ CRS Report R46290, *Overview of FY2021 Appropriations for Commerce, Justice, Science, and Related Agencies (CJS)*, by Nathan James.

DOC Agency	Mission	FY2021 Appropriations
National Oceanic and Atmospheric Administration (NOAA)	“(1) to understand and predict changes in climate, weather, oceans and coasts; (2) to share that knowledge and information with others; and (3) to conserve and manage coastal and marine ecosystems and resources”	\$5,430.6 million
National Technical Information Service (NTIS)	“provide innovative data services to federal agencies, through joint venture partnerships with the private sector, to advance federal data priorities, promote economic growth, and enable operational excellence”	\$0
National Telecommunications and Information Administration (NTIA)	“principally responsible by law for advising the President on telecommunications and information policy issues”	\$45.5 million
U.S. Patent and Trademark Office (USPTO)	“fostering innovation, competitiveness and job growth in the United States by conducting high quality and timely patent and trademark examination and review proceedings in order to produce reliable and predictable intellectual property rights; guiding intellectual property policy, and improving intellectual property rights protection; and delivering intellectual property information and education worldwide”	\$0

Sources: CRS from DOC, “Bureaus and Offices,” at <https://www.commerce.gov/bureaus-and-offices>; BIS, “Mission Statement,” at <https://www.bis.doc.gov/index.php/about-bis/mission-statement>; EDA, “Overview – Mission,” at <https://eda.gov/about/>; BEA, “Who We Are-Mission,” at <https://www.bea.gov/about/who-we-are>; Census Bureau, “About the Bureau,” at <https://www.census.gov/about.html>; ITA, “ITA Mission,” at <https://www.trade.gov/about-us>; MBDA, “About MBDA,” at <https://www.mbda.gov/who-we-are/overview>; NIST, “NIST Mission, Vision, Core Competencies, and Core Values,” at <https://www.nist.gov/about-nist/our-organization/mission-vision-values>; NOAA, “Our Mission and Vision,” at <https://www.noaa.gov/our-mission-and-vision>; NTIS, “Our Mission,” at <https://www.ntis.gov/index.html>; NTIA, “About NTIA,” at <https://www.ntia.doc.gov/about>; USPTO, *2018-2022 Strategic Plan*, at https://www.uspto.gov/sites/default/files/documents/USPTO_2018-2022_Strategic_Plan.pdf; and CRS Report R46290, *Overview of FY2021 Appropriations for Commerce, Justice, Science, and Related Agencies (CJS)*, by Nathan James.

Notes: NTIS funding is derived from a revolving fund. USPTO funding is fully derived from user fees that are designated as *offsetting collections* and subject to spending limits set by Congress.

Departmental Climate Change Adaptation Activities

To date, executive orders and other presidential documents have prompted much of the department’s climate change adaptation-related actions. Most DOC-level statutory authorities regarding climate change adaptation have been delegated to NOAA.⁵ One exception is the establishment of the U.S. Global Change Research Program.⁶ The program includes representatives from two DOC agencies: NOAA (required by law) and NIST (added by the President, who has the discretion to add agencies to the program).⁷

⁵ See the section entitled “National Oceanic and Atmospheric Administration.”

⁶ 15 U.S.C. §2931(b).

⁷ 15 U.S.C. §2932 and USGCRP, “Department of Commerce,” at <https://www.globalchange.gov/agency/department-commerce>.

Executive Orders and Other Presidential Documents

Several executive orders and other executive documents have shaped climate change adaptation activities at the department level over the past decade or so (**Table 2**). Multiple executive orders and a presidential memorandum issued between 2009 and 2016 by President Barack Obama required federal departments, including DOC, to support or implement climate change adaptation activities. In 2017 and 2018, President Donald Trump issued new executive orders that revoked some previous orders.⁸

Starting in 2021, President Joe Biden, through its own executive orders, revoked in whole or in part multiple Trump Administration executive orders that themselves had revoked several Obama Administration presidential documents related to DOC and climate change adaptation. The Biden Administration revocations effectively reinstated some of the Obama Administration presidential documents. The Biden Administration executive orders also required new activities related to climate change adaptation. See **Table 2** for descriptions of the orders and any changes to the orders since their release.

⁸ The Trump Administration executive orders did not use the terms *climate change*, *adaptation*, or other related terms. E.O. 13834, “Efficient Federal Operations,” 83 *Federal Register* 23771, May 17, 2018 (hereinafter E.O. 13834), includes one mention of *resilience*, stating that in implementing the policy, each agency must “enhance the resilience of Federal infrastructure and operations,” among other tasks. The executive order does not define the term *resilience*, nor does it use terms such as *climate change* or *adaptation*.

Table 2. Selected Executive Orders with Provisions Regarding the Department of Commerce (DOC) and Climate Change Adaptation
(2009 through the date of this report)

Executive Order (E.O.)	Date Released	Summary of DOC and Climate Change Adaptation Provisions	Changes Since Release
E.O. 13514, “Federal Leadership in Environmental, Energy, and Economic Performance”	October 2009	Required federal departments, including DOC, (1) “to evaluate agency climate-change risks and vulnerabilities to manage the effects of climate change on the agency’s operations and mission in both the short and long term” and (2) to participate in the interagency Climate Change Adaptation Task Force, among other tasks. ^a	Amended by E.O. 13653 in November 2013 (described below). Revoked by E.O. 13693 in March 2015 (described below).
E.O. 13547, “Stewardship of the Ocean, Our Coasts, and the Great Lakes”	July 2010	Established a national ocean policy to “provide for adaptive management to enhance our understanding of and capacity to respond to climate change,” among other goals, and directed the Secretary of Commerce and the Under Secretary of Commerce for Oceans and Atmosphere to participate in the National Ocean Council. ^b Adopted recommendations of the Interagency Ocean Policy Task Force established under the June 2009 presidential memorandum entitled “Memorandum for the Heads of Executive Departments and Agencies, National Policy for the Oceans, Our Coasts, and the Great Lakes.” ^c	Revoked by E.O. 13840, “Ocean Policy to Advance the Economic, Security, and Environmental Interests of the United States,” in June 2018. ^d
E.O. 13653, “Preparing the United States for the Impacts of Climate Change”	November 2013	Required DOC, among other departments, (1) “to develop and provide authoritative, easily accessible, usable, and timely data, information, and decision-support tools on climate preparedness and resilience” in support of federal and nonfederal preparation for climate change impacts; (2) to “develop or continue to develop, implement, and update comprehensive plans that integrate consideration of climate change into agency operations and overall mission objectives” (known as Agency Adaptation Plans); and (3) to participate in the interagency Council on Climate Preparedness and Resilience. ^e Required NOAA, among other agencies, to complete certain actions (see section on NOAA and “Executive Orders” below). Defined the terms <i>preparedness</i> , <i>adaptation</i> , and <i>resilience</i> . ^f	Amended by E.O. 13693 in March 2015 (described below). Revoked by E.O. 13783, “Promoting Energy Independence and Economic Growth,” in March 2017. ^g E.O. 13783 revoked by E.O. 13990 in January 2021 (described below), thereby reinstating E.O. 13653.
E.O. 13690, “Establishing a Federal Flood Risk Management Standard [FFRMS] and a Process for Further Soliciting and Considering Stakeholder Input”	January 2015	Amended E.O. 11988, “Floodplain Management,” sought to “improve the resilience of communities and Federal assets against the impacts of flooding,” and anticipated the impacts would increase over time due to the effects of climate change and other factors. ^h Required federal agencies (1) to apply the FFRMS to federally funded projects, ⁱ and (2) to determine the floodplain in question using a “climate-informed science approach that uses the best-available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on	Revoked by E.O. 13807, “Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects,” in August 2017. ^l

Executive Order (E.O.)	Date Released	Summary of DOC and Climate Change Adaptation Provisions	Changes Since Release
E.O. 13693, “Planning for Federal Sustainability in the Next Decade”	March 2015	climate science” or other specified method. ^j For example, federal agencies that administer grant programs, such as EDA and NOAA, were directed to “make adequate provision for the evaluation and consideration of flood hazards” in their regulations and procedures. ^k Revoked E.O. 13514 and amended E.O. 13653. ^m The amendments required agency heads, including the Secretary of Commerce, to “ensure that agency operations and facilities prepare for impacts of climate change” in specified ways.	E.O. 13807 revoked by E.O. 13990 in January 2021 (described below). E.O. 13990 directs OMB and CEQ to “consider whether to recommend that a replacement order be issued.”
Presidential Memorandum, “Climate Change and National Security”	September 2016	Created the Climate and National Security Working Group “to coordinate the development of a strategic approach to identify, assess, and share information on current and projected climate-related impacts on national security interests,” among other tasks. ^o The working group included senior-level representatives from DOC and other departments and agencies. It was directed to develop an action plan, with each individual agency tasked with developing an agency-specific implementation plan. ^p	Revoked by E.O. 13783 in March 2017. E.O. 13783 revoked by E.O. 13990 in January 2021 (described below), thereby reinstating the presidential memorandum. Formally reinstated by E.O. 14008 in January 2021 (described below).
E.O. 13751, “Safeguarding the Nation from the Impacts of Invasive Species”	December 2016	Amended E.O. 13112, “Invasive Species,” and directed federal agencies, including DOC agencies, to consider “the impacts of climate change when working on issues relevant to the prevention, eradication, and control of invasive species ... and [to] integrate invasive species into Federal climate change coordinating frameworks and initiatives.” ^q	NA
E.O. 13990, “Protecting Public Health and the Environment and Restoring	January 2021	Revoked, in whole or in part, multiple Trump Administration executive orders (E.O. 13783, E.O. 13807, and E.O. 13834) that had revoked several Obama Administration presidential documents related to DOC and climate change adaptation (E.O. 13653, E.O. 13690, E.O. 13693, and a presidential memorandum). ^r	NA

Executive Order (E.O.)	Date Released	Summary of DOC and Climate Change Adaptation Provisions	Changes Since Release
Science to Tackle the Climate Crisis”		Effectively reinstated those Obama Administration presidential documents in whole or in part (described above). Stated that it is the Administration’s policy “to bolster resilience to the impacts of climate change,” among other topics. Directed the heads of all agencies, including the Secretary of Commerce, (1) to review all agency documents and policies adopted since January 2017 that may be inconsistent with the E.O. policies; (2) to consider whether to “take any additional agency actions to fully enforce” the policies; and (3) to seek input from nonfederal stakeholders on implementing the two prior actions.	
E.O. 14008, “Tackling the Climate Crisis at Home and Abroad”	January 2021	Formally reinstated the presidential memorandum entitled “Climate Change and National Security” (described above). ⁵ Established the National Climate Task Force, to include the Secretary of Commerce, and directed the task force to “facilitate planning and implementation of key federal actions to ... increase resilience to the impacts of climate change” and to prioritize such actions in internal agency processes and nonfederal engagement, among other goals. Required agency heads to each submit a draft action plan to the task force and the Federal Chief Sustainability Officer that “describes steps the agency can take with regard to its facilities and operations to bolster adaptation and increase resilience to the impacts of climate change.” Agency heads are expected to submit annual progress reports on action plan implementation.	NA

Sources: See notes below.

Notes: CEQ = White House Council on Environmental Quality; EDA = Economic Development Administration; NA = not applicable; NOAA = National Oceanic and Atmospheric Administration; OMB = Office of Management and Budget.

- a. E.O. 13514, “Federal Leadership in Environmental, Energy, and Economic Performance,” 74 *Federal Register* 52117, October 5, 2009. The interagency Climate Change Adaptation Task Force began meeting prior to the release of the executive order (White House Council on Environmental Quality, *Progress Report of the Interagency Climate Change Adaptation Task Force: Recommended Actions in Support of a National Climate Change Adaptation Strategy*, October 2010, at <https://www.hsdl.org/?view&did=13030>).
- b. E.O. 13547, “Stewardship of the Ocean, Our Coasts, and the Great Lakes,” 75 *Federal Register* 43021, July 19, 2010. The Under Secretary of Commerce for Oceans and Atmosphere is also the Administrator of NOAA.
- c. Memorandum for the Heads of Executive Departments and Agencies, “National Policy for the Oceans, Our Coasts, and the Great Lakes,” presidential memorandum, 74 *Federal Register* 28591, June 12, 2009. The memorandum created a temporary task force with identical membership to the Committee on Ocean Policy, which included the Secretary of Commerce, among other department and agency representatives.
- d. E.O. 13840, “Ocean Policy to Advance the Economic, Security, and Environmental Interests of the United States,” 83 *Federal Register* 29431, June 19, 2018.
- e. E.O. 13653, “Preparing the United States for the Impacts of Climate Change,” 78 *Federal Register* 66817, November 1, 2013.

- f. E.O. 13653 defined *preparedness* as “actions taken to plan, organize, equip, train, and exercise to build, apply, and sustain the capabilities necessary to prevent, protect against, ameliorate the effects of, respond to, and recover from climate change related damages to life, health, property, livelihoods, ecosystems, and national security”; *adaptation* as “adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative effects”; and *resilience* as “the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.”
- g. E.O. 13783, “Promoting Energy Independence and Economic Growth,” 82 *Federal Register* 16093, March 28, 2017.
- h. E.O. 13690, “Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input,” 80 *Federal Register* 6425, January 30, 2015 (hereinafter E.O. 13690), and E.O. 11988, “Floodplain Management,” 42 *Federal Register* 26951, May 24, 1977.
- i. *Federally funded projects* are defined as “actions where Federal funds are used for new construction, substantial improvement, or to address substantial damage to structures and facilities.” *Guidelines for Implementing Executive Order 11988, Floodplain Management, and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, October 8, 2015, p. 4, at https://www.fema.gov/media-library-data/1444319451483-f7096df2da6db2adfb37a1595a9a5d36/FINAL-Implementing-Guidelines-for-EO11988-13690_08Oct15_508.pdf. Hereinafter *E.O. 11988 Implementing Guidance*, October 2015.
- j. E.O. 13690.
- k. *E.O. 11988 Implementing Guidance*, October 2015, p. 26. Some DOC agencies had begun the process of implementing E.O. 13690 before its revocation. For example, EDA had proposed a framework for implementation (EDA, “Federal Flood Risk Management Standard Announcement,” at <https://www.eda.gov/archives/2016/programs/disaster-recovery/ffrms.htm>).
- l. E.O. 13807, “Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects,” 82 *Federal Register* 40463, August 15, 2017.
- m. E.O. 13693, “Planning for Federal Sustainability in the Next Decade,” 80 *Federal Register* 15869, March 19, 2015.
- n. E.O. 13834, “Efficient Federal Operations,” 83 *Federal Register* 23771, May 17, 2018. E.O. 13834 includes one mention of *resilience*, stating that in implementing the policy, each agency must “enhance the resilience of Federal infrastructure and operations,” among other tasks. The EO does not define the term *resilience*, nor does it use terms such as *climate change* or *adaptation*.
- o. The White House, Office of the Press Secretary, “Presidential Memorandum – Climate Change and National Security,” September 21, 2016, at <https://obamawhitehouse.archives.gov/the-press-office/2016/09/21/presidential-memorandum-climate-change-and-national-security>.
- p. CRS did not locate any such plans.
- q. E.O. 13751, “Safeguarding the Nation from the Impacts of Invasive Species,” 81 *Federal Register* 88609, December 5, 2016, and E.O. 13112, “Invasive Species,” 64 *Federal Register* 6183, February 3, 1999.
- r. E.O. 13990, “Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis,” 86 *Federal Register* 7037, January 20, 2021.
- s. E.O. 14008, “Tackling the Climate Crisis at Home and Abroad,” 86 *Federal Register* 7619, January 27, 2021.

Executive Orders with a Geographic Focus

Other executive orders require DOC to support climate change adaptation activities in certain geographic areas. For example, E.O. 13508, “Chesapeake Bay Protection and Restoration,” issued in May 2009, requires a senior representative from DOC, among other departments, to serve on the executive order-established Federal Leadership Committee. The executive order identifies DOC and the Department of the Interior (DOI) as the lead agencies to “assess the impacts of a changing climate on the Chesapeake Bay and develop a strategy for adapting natural resource programs and public infrastructure to the impacts of a changing climate on water quality and living resources of the Chesapeake Bay watershed,” among other topics, in a report to the Federal Leadership Committee.⁹ E.O. 13508 also requires DOC and DOI “to the extent permitted by law, [to] organize and conduct research and scientific assessments to support development of the strategy to adapt to climate change impacts on the Chesapeake Bay watershed ... and to evaluate the impacts of climate change on the Chesapeake Bay in future years.”¹⁰ E.O. 13508 is still in force as of the date of this report.

E.O. 13554, “Establishing the Gulf Coast Ecosystem Restoration Task Force,” issued in October 2010, required a DOC senior official to be a part of the Gulf Coast Ecosystem Restoration Task Force.¹¹ The task force’s functions included coordination of “intergovernmental efforts to improve efficiency and effectiveness in the implementation of Gulf Coast ecosystem restoration actions,” with *ecosystem restoration* defined to include “protecting and conserving ecosystems so that they can continue to ... assist in mitigating and adapting to the impacts of climate change,” among other functions.¹² E.O. 13626, “Gulf Coast Ecosystem Restoration,” released in September 2012, revoked E.O. 13554, terminating the task force and charging the congressionally created Gulf Coast Ecosystem Restoration Council with incorporating the task force’s findings into its own comprehensive plan.¹³ Under statute, the council must include the Secretary of Commerce or the Secretary’s designee at the level of Assistant Secretary or the equivalent.¹⁴ E.O. 13626 is still in force as of the date of this report.

E.O. 13689, “Enhancing Coordination of National Efforts in the Arctic,” issued in January 2015, requires the Deputy Secretary or equivalent officer from DOC to be part of the Arctic Executive Steering Committee (AESC). AESC is expected to provide guidance to executive departments and agencies and enhance coordination of federal Arctic policies across federal and nonfederal entities.¹⁵ The executive order’s policy findings note that the United States has the responsibility

⁹ E.O. 13508, “Chesapeake Bay Protection and Restoration,” 74 *Federal Register* 23099, May 12, 2009. Hereinafter E.O. 13508.

¹⁰ E.O. 13508. See the relevant strategy at Federal Leadership Committee for the Chesapeake Bay, *Action Plan: Strategy for Protecting and Restoring the Chesapeake Bay Watershed*, December 2012, at https://federalleadership.chesapeakebay.net/eo_13508_fy13_action_plan.pdf. Additional documents developed in response to E.O. 13508 can be found at <https://federalleadership.chesapeakebay.net/page/Reports-Documents.aspx>.

¹¹ E.O. 13554, “Establishing the Gulf Coast Ecosystem Restoration Task Force,” 75 *Federal Register* 62313, October 5, 2010 (hereinafter E.O. 13554). The DOC representative on the task force was the Principal Deputy Under Secretary for Oceans and Atmosphere of NOAA.

¹² E.O. 13554.

¹³ E.O. 13626, “Gulf Coast Ecosystem Restoration,” 77 *Federal Register* 56749, September 10, 2012. Hereinafter E.O. 13626.

¹⁴ 33 U.S.C. §1321(t)(2)(C)(ii). For current membership, see Gulf Coast Ecosystem Restoration Council, “Council Members,” at <https://www.restorethegulf.gov/people/council-members>.

¹⁵ E.O. 13689, “Enhancing Coordination of National Efforts in the Arctic,” 80 *Federal Register* 4189, January 21, 2015. Hereinafter E.O. 13689.

to “understand more fully and manage more effectively the adverse effects of climate change” and to “protect life and property,” among others.¹⁶ E.O. 13754, “Northern Bering Sea Climate Resilience,” released December 2016, established a task force on the Northern Bering Sea Climate Resilience Area under AESC, cochaired by NOAA, DOI, and the U.S. Coast Guard.¹⁷ The executive order charged the task force with advancing “the policy of the United States to enhance the resilience of the northern Bering Sea region,” but did not define the term *resilience*. E.O. 13689 remains in force as of the date of this report. E.O. 13754 (and its task force) was revoked by E.O. 13795, “Implementing an America-First Offshore Energy Strategy,” in April 2017.¹⁸ E.O. 13990 revoked E.O. 13795 in January 2021, thereby reinstating E.O. 13754. In April 2020, GAO noted that AESC was “dormant.”¹⁹

DOC Departmental Guidance

DOC responded to several executive orders by developing departmental administrative orders and guidance documents. Two executive orders, E.O. 13514 and E.O. 13653, issued in October 2009 and November 2013 respectively, drove DOC to develop most of its climate change adaptation guidance, until the revocation of the executive orders in March 2015 and March 2017, respectively.²⁰ It is unclear what actions the department may take moving forward with the reinstatement of E.O. 13653 by E.O. 13990 in January 2021. A timeline of DOC actions, based on available information, is presented below.

- In 2011, DOC released Departmental Administrative Order (DAO) 216-18.²¹ DAO 216-18 stated it was “the policy of the Department to undertake comprehensive climate change adaptation planning in order to ensure that the Department fulfills its mission and maintains its programs and operations in a changing climate.”²² DAO 216-18 identified six ways DOC was working to “promote a more climate-resilient economy, society and environment.”²³ DAO

¹⁶ E.O. 13689.

¹⁷ E.O. 13754, “Northern Bering Sea Climate Resilience,” 81 *Federal Register* 90669, December 9, 2016. Hereinafter E.O. 13754.

¹⁸ E.O. 13795, “Implementing an America-First Offshore Energy Strategy,” 82 *Federal Register* 20815, April 28, 2017. Hereinafter E.O. 13795.

¹⁹ GAO, *Maritime Infrastructure: A Strategic Approach and Interagency Leadership Could Improve Federal Efforts in the U.S. Arctic*, GAO-20-460, April 2020, p. 31, at <https://www.gao.gov/assets/710/706502.pdf>. For more information about U.S. Arctic policy, see CRS Report R41153, *Changes in the Arctic: Background and Issues for Congress*, coordinated by Ronald O'Rourke.

²⁰ E.O. 13514, “Federal Leadership in Environmental, Energy, and Economic Performance,” 74 *Federal Register* 52117, October 5, 2009 (hereinafter E.O. 13514) was revoked by E.O. 13693, “Planning for Federal Sustainability in the Next Decade,” 80 *Federal Register* 15869, March 19, 2015 (hereinafter E.O. 13693). E.O. 13653, “Preparing the United States for the Impacts of Climate Change,” 78 *Federal Register* 66817, November 1, 2013 (hereinafter E.O. 13653), and E.O. 13693 were revoked by E.O. 13783, “Promoting Energy Independence and Economic Growth,” 82 *Federal Register* 16093, March 28, 2017 (hereinafter E.O. 13783), and E.O. 13834, respectively. For more information, see **Table 2**.

²¹ E.O. 13514; Secretary of Commerce, *Climate Change Adaptation Planning*, DOC, Number: DAO 216-18, August 31, 2011, at http://www.osec.doc.gov/opog/dmp/daos/dao216_18.html. Hereinafter DAO 216-18.

²² DAO 216-18, §5.01.

²³ The six ways focused on (1) providing climate science and services to federal and nonfederal partners; (2) assisting federal and nonfederal entities with integrating climate information into their near- and long-term strategies; (3) promoting the advancement of green growth; (4) working with industry to develop climate change and adaptation expertise; (5) ensuring DOC policies and decisions reflect current and projected climate impacts; and (6) strengthening scientific understanding of climate variability and change (DAO 216-18, Section 4).

216-18 also established a Climate Coordinating Committee to develop DOC's *Climate Change Adaptation Strategy* (CCAS; also known as an *agency adaptation plan*).

- In June 2012, DOC released the CCAS as an appendix to the updated DOC *Strategic Sustainability Performance Plan* (SSSP).²⁴
- In June 2014, DOC published an updated CCAS which reflected lessons learned since the first strategy, and incorporated guidance provided by the White House Council on Environmental Quality on implementing the then-newly released E.O. 13653.²⁵ The 2014 CCAS included key findings from DOC's climate change vulnerability assessment;²⁶ DOC five-year strategic goals for adaptation planning; priority agency adaptation actions to implement in FY2014; and DOC-wide activities, such as interagency coordination, actions to modernize federal program and policy, and opportunities to support nonfederal entities.
- In 2016, DOC released an updated SSSP, which mentioned the development of a 2016 DOC climate change adaptation plan and noted "significant progress" on many of the actions in the 2014 CCAS.²⁷ CRS was unable to locate the 2016 DOC climate change adaptation plan.²⁸ The 2016 SSSP outlined several climate change resilience strategies the department planned to prioritize in FY2017, including department- and agency-level activities.²⁹ One of the SSSP's priorities was to update DAO 216-18 by the end of 2017; however, the DAO has not been revised since its release in 2011.³⁰

Under statute, federal agencies are required to publish a strategic plan one year after a President's term begins.³¹ Although DOC's 2018-2022 strategic plan includes a goal to "strengthen U.S. economic and national security" through reducing extreme weather impacts, among other activities, the plan does not refer to *climate change*, *adaptation*, or similar terms.³² In contrast, previous DOC strategic plans explicitly noted adaptation to climate change. For example, the

²⁴ DOC, *United States Department of Commerce Strategic Sustainability Performance Plan*, June 22, 2012.

²⁵ DOC, *Department of Commerce Climate Change Adaptation Strategy*, updated June 2014, at https://www.osec.doc.gov/ofeq/Documents/OSEEP/Annual%20Rpts%20&%20Scrcards/Final%20DOC%20Adaptation%20Plan_Final_2014-6-10.pdf. Hereinafter DOC, CCAS, 2014.

²⁶ DOC, CCAS, 2014 noted DOC's key climate change vulnerabilities in four of its mission areas: economic growth, science and information, environmental stewardship, and infrastructure, facilities, and operations management. DOC, CCAS, 2014, pp. 6-10.

²⁷ DOC, *Strategic Sustainability Performance Plan*, June 2016, p. 8, at [https://www.osec.doc.gov/ofeq/documents/oseep/docs%20&%20newsltrs/documents/doc%202016%20sspp%20\(final%20posted%209.08.16\).pdf](https://www.osec.doc.gov/ofeq/documents/oseep/docs%20&%20newsltrs/documents/doc%202016%20sspp%20(final%20posted%209.08.16).pdf). Hereinafter DOC, SSSP, 2016.

²⁸ CRS requested the 2016 plan from the DOC Office of Legislative and Intergovernmental Affairs but did not receive a response (email correspondence between DOC Office of Legislative and Intergovernmental Affairs and CRS, September 1, 2020).

²⁹ DOC, SSSP, 2016, pp. 60-63.

³⁰ DOC Office of Privacy and Open Government, "Recent Updates," visited October 21, 2020, at <https://www.osec.doc.gov/opog/dmp/updates.html>.

³¹ 5 U.S.C. §306.

³² The plan focuses on five strategic goals: (1) accelerate American leadership, (2) enhance job creation, (3) strengthen U.S. economic and national security, (4) fulfill constitutional requirements and support economic activity, and (5) deliver customer-centric service excellence (DOC, *U.S. Department of Commerce Strategic Plan 2018-2022: Helping the American Economy Grow*, 2018, at https://www.commerce.gov/sites/default/files/us_department_of_commerce_2018-2022_strategic_plan.pdf. Hereinafter DOC, *Strategic Plan 2018-2022*, 2018).

2014-2018 DOC strategic plan included a goal to “help communities and businesses prepare for and prosper in a changing environment.”³³ Objectives under this goal included

- advancing the understanding and prediction of changes in the environment;
- building a weather-ready nation;
- strengthening the resiliency of communities and regions;
- fostering healthy and sustainable marine resources, habitats, and ecosystems; and
- enabling U.S. businesses to adapt and prosper by developing environmental and climate-informed solutions.³⁴

The 2014-2018 strategic plan specifically cited “climate change” as a motivating factor in strengthening community resiliency and fostering healthy and sustainable marine resources.

The 2011-2016 DOC strategic plan also included related objectives under the goals to “generate and communicate new, cutting-edge scientific understanding of technical, economic, social, and environmental systems” and “promote economically-sound environmental stewardship and science.” These objectives included

- increasing scientific knowledge and providing information to stakeholders to support economic growth and to improve innovation, technology, and public safety;
- enabling informed decisionmaking through an expanded understanding of the U.S. economy, society, and environment by providing timely, relevant, trusted and accurate data, standards, and services;
- improving weather, water, and climate reporting and forecasting;
- supporting climate adaptation and mitigation;
- developing sustainable and resilient fisheries, habitats, and species; and
- supporting coastal communities that are environmentally and economically sustainable.³⁵

DOC Climate Change Adaptation Activities at the Agency Level

Agency-specific directives and guidance—in addition to DOC-level congressional directives and executive branch guidance—dictate agency climate change adaptation activities. The following subsections discuss DOC agency-specific statutory authorities, executive orders, and guidance documents for agencies included in and omitted from the 2014 CCAS. DOC identified NOAA as the lead office in the implementation of 14 of the 20 priority adaptation actions in the 2014 CCAS; therefore, the majority of this section focuses on NOAA’s responsibilities and activities.

DOC tasked agencies other than NOAA, such as the Economic Development Administration (EDA), International Trade Association (ITA), National Institute of Standards and Technology (NIST), and U.S. Patent and Trademark Office (USPTO), with priority adaptation actions in the

³³ DOC, *U.S. Department of Commerce Strategic Plan Fiscal Years 2014-2018*, at http://www.osec.doc.gov/bmi/budget/DOCStrategicPlanV1%201_061815.pdf. Hereinafter DOC, *Strategic Plan FY2014-FY2018*, 2015.

³⁴ DOC, *Strategic Plan FY2014-FY2018*, 2015, pp. 22-27.

³⁵ DOC, *U.S. Department of Commerce Strategic Plan FY2011-2016*, pp. 55-87, at http://www.osec.doc.gov/bmi/budget/DOCFY11-16StrategicPlan%20_508version.pdf.

2014 CCAS. Overall, current congressional directives and executive guidance require a smaller role for these agencies in carrying out climate change adaptation in comparison to NOAA's responsibilities.

National Oceanic and Atmospheric Administration³⁶

In contrast to other DOC agencies, NOAA was established through congressional approval of the Reorganization Plan No. 4 of 1970.³⁷ Since then, Congress has shaped NOAA's responsibilities and authorities through more than 100 statutes, ranging from broad departmental and agency requirements to specific program activities.³⁸ Executive orders and departmental directives provide further guidance to the agency.

NOAA is organized into six line offices, each with different primary missions, as well as a Mission Support office that supports the agency as a whole.³⁹ Line offices include the National Environmental Satellite, Data, and Information Service (NESDIS); National Marine Fisheries Service (NMFS); National Ocean Service (NOS); National Weather Service (NWS); Office of Marine and Aviation Operations (OMAO); and Office of Oceanic and Atmospheric Research (OAR). According to NOAA, the agency's mission is (1) to understand and predict changes in climate, weather, oceans, and coasts; (2) to share that knowledge and information with others; and (3) to conserve and manage coastal and marine ecosystems and resources.⁴⁰ NOAA has stated that it provides "data, tools, and information to help people understand and prepare for climate variability and change."⁴¹

Statutory Authorities

Congress has explicitly directed the Secretary of Commerce, who has delegated to NOAA, or NOAA itself to carry out some actions related to climate change adaptation (see **Table 3** for selected statutes). NOAA's activities under their statutory authorities generally fall into two categories: (1) collecting and sharing climate and climate change information and (2) supporting research on climate change, its effects, and potential adaptations to those effects.

Table 3. Selected NOAA Statutory Authorities Used to Carry Out Climate Change Adaptation Activities

(in order of enactment, as of the date of this report)

Program/Activity	Authority	Program/Activity Description
National Climate Program	P.L. 95-367, as amended; 15 U.S.C. §2904(d)(2)	Directed the Secretary of Commerce to establish the National Climate Program Office (CPO) at the Department of Commerce (DOC) to administer the National Climate Program, among other tasks. The Secretary established CPO within NOAA. Under statute, the program must include, among nine required elements, "(1) assessments of the effect of climate on the national environment, agricultural production, energy supply and demand, land and water resources, transportation, human health and national security [and] ... (2) basic and applied research

³⁶ For more information, contact Eva Lipiec, Analyst in Natural Resources Policy.

³⁷ 5 U.S.C. Appendix Reorganization Plan No. 4 of 1970.

³⁸ NOAA, "NOAA 101," February 2017, presentation slides, p. 10, at <https://www.legendary.noaa.gov/policybriefs/NOAA%20101%20021617.pdf>.

³⁹ NOAA, "Organization," at <https://www.noaa.gov/about/organization>.

⁴⁰ NOAA, "Our Mission and Vision," at <https://www.noaa.gov/our-mission-and-vision>.

⁴¹ NOAA, "Climate," at <https://www.noaa.gov/climate>.

Program/Activity	Authority	Program/Activity Description
		<p>to improve the understanding of climate processes, natural and man-induced, and the social, economic, and political implications of climate change.”</p> <p>According to CPO, the program “advances understanding and prediction of climate, and leverages the science to help Americans plan and respond.”^a Activities within CPO include the National Integrated Drought Information System (NIDIS, described below), the National Integrated Heat Health Information System, Regional Integrated Sciences and Assessments, and Coastal and Ocean Climate Applications, among others.^b</p>
Regional Marine Research Grant Program	P.L. 101-593; 16 U.S.C. §1447d(b)(2)(j)	Instructed the NOAA Administrator to administer a grant program to regional marine research boards to support projects that assess “the effects of climate change on marine resources in the region,” among other research priorities. According to NOAA, the program has not received funding in recent years. ^c
Authorized Activities of NOAA	P.L. 107-253; 15 U.S.C. §313c(5)	<p>Instructed NOAA, through its United States Weather Research Program, to “assess through research and analysis of previous trends ... how shifts in climate, development, and erosion patterns might make certain regions vulnerable to more continual or escalating flood damage in the future,” among other activities.</p> <p>NOAA indicated it has ongoing research activities related to this statute, including activities at several labs (Physical Sciences Lab, Geophysical Fluid Dynamics Lab, and National Severe Storms Lab) as well as at the National Center for Environmental Information, National Hurricane Center, National Water Center, National Center for Environmental Prediction, and elsewhere in NOAA.^d</p>
National Integrated Drought Information System (NIDIS)	P.L. 109-430, as amended; 15 U.S.C. §313d(b)(6)	<p>Directed the Under Secretary of Commerce for Oceans and Atmosphere to establish NIDIS. NIDIS is to “continue ongoing research and monitoring activities related to drought, including research activities relating to ... impacts of drought and the role of extreme weather events and climate variability in drought.”^e</p> <p>NOAA identified NIDIS as a program that responds to the department’s 2014 Climate Change Adaptation Strategy. According to NOAA, NIDIS “integrates basic and applied research” performed by NOAA and other federal agencies into an “adaptive decision-support environment for resource managers, farmers, and other water users.”^f NIDIS also supports monitoring and forecasting systems and education efforts.</p>
Integrated Coastal and Ocean Observing System	P.L. 111-11, as amended; 33 U.S.C. §3603(c)(3)	<p>Identified NOAA as the lead federal agency for the implementation and administration of the Interagency Coastal and Ocean Observing System and directed the agency to “implement a program of public education and outreach to improve public awareness of global climate change and effects on the ocean, coastal, and Great Lakes environment,” among other duties.</p> <p>NOAA indicated it meets this obligation in several ways including through (1) grants to regional associations to support outreach and educational efforts; (2) public newsletters and meetings of the U.S. Integrated Ocean Observing System (IOOS) Office; and (3) a standing U.S. IOOS Education and Outreach Committee which develops and implements national and regional education and outreach efforts.^g</p>
Interagency Subcommittee on Ocean Acidification	P.L. 111-11, as amended; 33 U.S.C. §3703(c)(4)	Identified NOAA as the chair of a newly established interagency subcommittee to coordinate federal ocean acidification activities. Among other activities, required the subcommittee to complete and periodically update an Ocean Chemistry Coastal Community Vulnerability Assessment, to include identifying impacts of changing ocean carbonate

Program/Activity	Authority	Program/Activity Description
		chemistry on certain communities. The assessment is due December 2023.
Interagency Subcommittee on Ocean Acidification Strategic Plan	P.L. 111-11, as amended; 33 U.S.C. §3704(c)	Required the interagency subcommittee on ocean acidification to develop a strategic plan, to include actions such as “applied research to identify adaptation strategies for species impacted by changes in ocean chemistry.” A revised strategic plan that meets this requirement is due December 2022.
NOAA Ocean Acidification	P.L. 111-11, as amended; 33 U.S.C. §3705(a)(1)(C)	Instructed the Secretary of Commerce to establish an ocean acidification program to “research to identify and develop adaptation strategies and techniques for effectively conserving marine ecosystems as they cope with increased ocean acidification,” and to provide a mechanism for nonfederal stakeholders to offer input on monitoring needs to support adaptation, among other activities. ^h NOAA identified the Ocean Acidification Program as an activity that responds to the department’s 2014 Climate Change Adaptation Strategy. NOAA’s Ocean Acidification Program “seeks to better prepare society to respond to changing ocean conditions and resources” through monitoring, experimental facilities, education and outreach, and data management. ⁱ
Climate Change and Water Intragovernmental Panel	P.L. 111-11; 42 U.S.C. §10366(a)	Directed the Secretary of the Interior and the NOAA Administrator to establish and lead a climate change and water intragovernmental panel—(1) to review the current scientific understanding of each impact of global climate change on the quantity and quality of freshwater resources of the United States; and (2) to develop any strategy that the panel determines to be necessary to improve observational capabilities, expand data acquisition, or take other actions (A) to increase the reliability and accuracy of modeling and prediction systems to benefit water managers at the Federal, State, and local levels; and (B) to increase the understanding of the impacts of climate change on aquatic ecosystems. Congress directed the Secretary of the Interior to submit the required review and strategy to Congress by 2009. ^j

Source: CRS.

Notes: NOAA = National Oceanic and Atmospheric Administration

- a. For more information, see CPO, “About the Climate Program Office,” at <https://cpo.noaa.gov/Who-We-Are/About-CPO>.
- b. CPO, “NOAA [Office of Oceanic and Atmospheric Research] OAR Climate Program Office Organization,” at <https://cpo.noaa.gov/Who-We-Are/Org-Chart>.
- c. Email correspondence with NOAA, Office of Legislative and Intergovernmental Affairs (OLIA), August 20, 2020.
- d. Email correspondence with NOAA OLIA, August 20, 2020. For more information, see the following resources: NOAA OAR, “OAR Labs,” at <https://research.noaa.gov/Labs-Programs/OAR-Labs>; NOAA National Centers for Environmental Information, “National Centers for Environmental Information,” at <https://www.ncei.noaa.gov/>; NOAA National Hurricane Center (NHC) and Central Pacific Hurricane Center, “NOAA/NHC Hurricane Research,” at <https://www.nhc.noaa.gov/aboutresearch.shtml>; NOAA Office of Water Prediction, “Welcome to the Office of Water Prediction,” at <https://water.noaa.gov/>; and NOAA National Weather Service National Centers for Environmental Prediction, “National Centers for Environmental Prediction,” at <https://www.ncep.noaa.gov/>.

- e. Email correspondence with NOAA OLIA, March 25, 2020.
- f. For more information, see NOAA Climate Program Office, “About the National Integrated Drought Information System (NIDIS),” at <https://cpo.noaa.gov/Serving-Society/NIDIS>.
- g. Email correspondence with NOAA OLIA, August 20, 2020. For more information about the U.S. Integrated Ocean Observing System, see NOAA, “Integrated Ocean Observing System,” at <https://ioos.noaa.gov/>.
- h. Email correspondence with NOAA OLIA, March 25, 2020.
- i. NOAA, OAP, “Find Out More About OAP’s Areas of Focus,” at <https://oceanacidification.noaa.gov/WhatWeDo.aspx>.
- j. According to NOAA, there are no further requirements as the report was submitted to Congress in 2009 (email correspondence with NOAA OLIA, August 20, 2020).

Many of NOAA’s climate change adaptation activities may be carried out under statutory authorities that are not specific to climate change adaptation, and shaped by the departmental and agency guidance described below. These activities occur across the agency, and again may be divided into two categories: (1) collecting and sharing climate and climate change information and (2) supporting research on climate change, its effects, and potential adaptations to those effects. Selected examples of activities under each line office include the following:

- NESDIS aims to “provide secure and timely access to global environmental data and information from satellites and other sources to promote and protect the Nation’s security, environment, economy, and quality of life.”⁴² The line office manages a constellation of Earth observing satellites in support of its statutory responsibilities to observe meteorological conditions, forecast weather, and understand climate processes, among other tasks.⁴³ According to the agency, “NOAA’s satellite data improve the Nation’s resilience to climate variability,” among other benefits.⁴⁴
- NMFS is “responsible for the stewardship of the nation’s ocean resources and their habitat.”⁴⁵ Congress directs NOAA to manage and conserve fisheries and to recover protected marine species.⁴⁶ NMFS activities in support of responding and adapting to climate change have included developing a climate science strategy and new stock assessments and implementing ecosystem-based fisheries management.⁴⁷
- NOS “provides data, tools, and services that support coastal economies and their contribution to the national economy.”⁴⁸ Several NOS authorities support the line office’s climate change adaptation activities, such as research within the agency and technical and financial assistance to nonfederal entities.⁴⁹ For example,

⁴² NOAA, National Environmental Satellite Data and Information Service, “About,” at <https://www.nesdis.noaa.gov/content/about>.

⁴³ For example, under 15 U.S.C. §§313, 8521, and 2904.

⁴⁴ NOAA National Centers for Environmental Information, “Satellite Data,” at <https://www.ncdc.noaa.gov/data-access/satellite-data>.

⁴⁵ NOAA, NOAA Fisheries, “About Us,” at <https://www.fisheries.noaa.gov/about-us>.

⁴⁶ For example, under 16 U.S.C. §§1901 et seq. and 16 U.S.C. §§1361 et seq.

⁴⁷ NOAA, NOAA Fisheries, “Climate: Responding to Change,” at <https://www.fisheries.noaa.gov/topic/climate#responding-to-change>; and NOAA, NOAA Fisheries, “NOAA Fisheries Climate Science Strategy,” at <https://www.fisheries.noaa.gov/national/climate/noaa-fisheries-climate-science-strategy>.

⁴⁸ NOAA, National Ocean Service (NOS), “About the National Ocean Service,” at <https://oceanservice.noaa.gov/about/>.

⁴⁹ NOAA, NOS, *An Introduction to NOAA’s National Ocean Service*, at

eligible states and territories have used assistance from the National Coastal Zone Management Program in support of projects such as the development of sea-level rise projections and guidance, and climate adaptation studies and policies.⁵⁰ NOS also serves as home to the agency’s coastal scientists working on topics potentially affected by climate change, such as harmful algal blooms and hypoxia,⁵¹ ecosystem services,⁵² and national marine sanctuaries,⁵³ among other topics.

- NWS aims to provide weather, water, and climate data; forecasts; and warnings for the protection of life and property and the enhancement of the national economy.⁵⁴ NWS has compiled an extensive climate record for the United States through its long-term weather monitoring. The agency also maintains and shares several climate monitoring products.⁵⁵ Among other authorities, Congress has directed NWS to improve its longer-term weather forecasts (two weeks to two years), potentially closing the gap between short-term weather forecasts and long-term climate forecasts.⁵⁶ NWS also supports continuing development of local climate analysis tools to address drought, extreme weather, Arctic sea ice, and coastal sea-level concerns.⁵⁷
- OAR’s mission is to “conduct research to understand and predict the Earth system; develop technology to improve NOAA science, service, and stewardship; and transition the results so they are useful to society.”⁵⁸ Multiple OAR offices carry out climate change adaptation activities, such as providing technical and financial assistance, under other authorities. For example, Congress created the National Sea Grant College Program, currently under OAR,⁵⁹ which provides technical and financial assistance for climate change adaptation in local

<https://aamboceanservice.blob.core.windows.net/oceanservice-prod/about/introduction-nos.pdf>.

⁵⁰ 16 U.S.C. §§1451 et seq. For more information about the National Coastal Zone Management Program, see CRS Report R45460, *Coastal Zone Management Act (CZMA): Overview and Issues for Congress*, by Eva Lipiec; NOAA, NOS Office of Coastal Management, “Washington Coastal Resilience Project Ups Hazard Readiness,” at <https://coast.noaa.gov/states/stories/washington-coastal-resilience-project.html>; and NOAA, NOS Office of Coastal Management, “Fort Lauderdale Walks the Talk on Climate Adaptation,” at <https://coast.noaa.gov/states/stories/fort-lauderdale-climate-adaptation-plan-approved.html>; and NOAA, NOS Office of Coastal Management, “NOAA Support Sets the Stage for Disaster Recovery Preparedness Policy,” at <https://coast.noaa.gov/states/stories/disaster-recovery-preparedness-policy.html>.

⁵¹ 16 U.S.C. §§6401 et seq. and 33 U.S.C. §§4001 et seq.

⁵² NOAA, National Centers for Coastal Ocean Science, “Coastal Change,” at <https://coastalscience.noaa.gov/research/coastal-change/>.

⁵³ NOAA, National Marine Sanctuaries, “About,” at <https://sanctuaries.noaa.gov/about/>.

⁵⁴ NOAA, National Weather Service, “About,” at <https://www.weather.gov/about/>; 15 U.S.C. §313; and 55 U.S.C. §706.

⁵⁵ NOAA, *Report to Congress - Subseasonal and Seasonal Forecasting Innovation: Plans for the Twenty-First Century*, developed pursuant to Section 201 of P.L. 115-25, 2020, p. 9. National Weather Service climate monitoring products include parameters such as drought, precipitations, radiation, and temperature (*ibid.*, pp. 16-17).

⁵⁶ 15 U.S.C. §8521.

⁵⁷ Correspondence between CRS and NOAA Office of Legislative and Intergovernmental Affairs, June 26, 2020; and NOAA, National Weather Service, “Local Climate Analysis Tool,” at <https://nws.weather.gov/lcat/home>.

⁵⁸ NOAA, Office of Oceanic and Atmospheric Research (OAR), “About NOAA Research,” at <https://research.noaa.gov/About-Us>. For example, the Ocean and Atmospheric Research and Development Program was established under 33 U.S.C. §893.

⁵⁹ 33 U.S.C. §1121(b).

communities.⁶⁰ OAR also includes other programs that support research and monitoring related to climate change adaptation in various ways.⁶¹

- OMAO’s mission is to “safely deliver effective Earth observation capabilities, integrate emerging technologies, and provide a specialized, flexible, and reliable team responsive to NOAA and the nation.”⁶² The line office administers the NOAA fleet of ships and aircraft, and it “supports a wide range of marine activities including fisheries research, nautical charting, and ocean and climate studies.”⁶³
- NOAA’s Mission Support includes multiple offices, such as communications, education, and general counsel, some of which may support climate change adaptation activities. For example, Congress has directed NOAA to support formal and informal educational activities regarding ocean, coastal, Great Lakes, and atmospheric science and stewardship.⁶⁴ Some of these activities have been implemented through NOAA’s Office of Education programs, such as the Environmental Literacy Program, which has funded grants to disseminate climate change and climate change adaptation information to students and the general public, among other activities.⁶⁵
- Several cross-agency activities also support climate change adaptation. For example, Congress directed NOAA to support coral reef conservation,⁶⁶ including increasing coral reef “resilience to climate change.”⁶⁷ Multiple line offices (NESDIS, NMFS, NOS, and OAR) contribute to the program by supporting mapping, monitoring, forecasting, and modeling and by providing technical and financial assistance to nonfederal entities.⁶⁸ Other cross-agency examples include the development and maintenance of online clearinghouses.⁶⁹ One such database is Climate.gov, “a source of timely and authoritative scientific data and information about climate” to “promote public understanding of climate

⁶⁰ The National Sea Grant College Program provides funding to state-level Sea Grant organizations, which have disbursed their funds to support climate change adaptation on a local level. Examples include Alaska Sea Grant’s Climate Change Adaptation Planning Tool (<https://seagrant.uaf.edu/bookstore/pubs/M-141.html>), New Hampshire Sea Grant climate change resources (<https://seagrant.unh.edu/climate-adaptation>), University of Southern California’s technical assistance and project funding (<https://dornsife.usc.edu/uscseagrant/climate-change/>), and Wisconsin Sea Grant’s adaptation strategies (<https://www.seagrant.wisc.edu/our-work/focus-areas/coastal-processes-and-engineering/coastal-processes/climate-change-implications-and-adaptation-strategies/>), among other Sea Grant programs and projects.

⁶¹ NOAA, OAR, “OAR Labs,” at <https://research.noaa.gov/Labs-Programs/OAR-Labs>; NOAA, OAR Weather Program Office, “About,” at <https://wpo.noaa.gov/Programs/Overview>; NOAA, OAR Unmanned Aircraft Systems Program, “Overview,” at <https://uas.noaa.gov/About/Overview>; and NOAA, Global Ocean Monitoring and Observing, “Our Mission,” at <https://globalocean.noaa.gov/>.

⁶² NOAA, Office of Marine and Aviation Operations (OMAO), “Mission & Statutory Authority,” at <https://www.omaο.noaa.gov/learn/about-omaο/mission-statutory-authority>.

⁶³ NOAA, OMAO, “About OMAO,” at <https://www.omaο.noaa.gov/learn/about-omaο>.

⁶⁴ 33 U.S.C. §893a.

⁶⁵ NOAA, “Explore Awards – Climate,” at https://www.noaa.gov/office-education/elp/grants/awards?search_api_views_fulltext=climate.

⁶⁶ 16 U.S.C. §§6401 et seq.

⁶⁷ NOAA, Coral Reef Conservation Program, “Who We Are,” at <https://coralreef.noaa.gov/about/welcome.html>.

⁶⁸ NOAA, Coral Reef Conservation Program, “Our Strategy,” at <https://coralreef.noaa.gov/conservation/welcome.html>.

⁶⁹ According to the agency, NOAA’s work on these databases is authorized under 15 U.S.C. 2904. Email correspondence with NOAA, Office of Legislative and Intergovernmental Affairs, January 19, 2021.

science and climate-related events, ... to provide climate-related support to the private sector and the Nation's economy, and to serve people making climate-related decisions with tools and resources that help them answer specific questions," among other goals.⁷⁰ Another is the U.S. Climate Resilience Toolkit, "designed to help people find and use tools, information, and subject matter expertise to build climate resilience."⁷¹ Finally, in 2020, Congress enacted legislation codifying NOAA's Digital Coast program, a website that provides datasets, tools, and training.⁷² Among other topics, the Digital Coast includes resources about coastal adaptation strategies.⁷³

In the late 2000s and early 2010s, NOAA proposed and deliberated an agency restructuring to create a new line office, known as the Climate Service, from existing and expanded programs.⁷⁴ The proposal was in response to recommendations from a congressionally mandated National Academy of Public Administration study, among other findings.⁷⁵ The proposed mission of the Climate Service line office was to

improve understanding and prediction of changes in climate and inform a climate-resilient society by:

Monitoring climate trends, conducting research, and developing models to strengthen our knowledge of the changing climate and its impacts on our physical, economic, and societal systems;

Providing authoritative and timely information products and services about climate change, climate variability, and impacts; and

Informing decision-making and management at the local, state, regional, national, and international levels.⁷⁶

The proposal was controversial for several years. Some stakeholders argued the Climate Service would duplicate "the historic and current mission, programs, and services of the National Weather Service."⁷⁷ Others proposed that a national climate service take the form of a federal interagency partnership or other format.⁷⁸ Congress did not approve the creation of the service at NOAA for

⁷⁰ NOAA, "About NOAA Climate.gov," at <https://climate.gov/about>.

⁷¹ NOAA, "About," at <https://toolkit.climate.gov/content/about>.

⁷² 16 U.S.C. §1467.

⁷³ NOAA, Office of Coastal Management Digital Coast, "Adaptation Strategies," at <https://coast.noaa.gov/digitalcoast/topics/climate-adaptation.html>.

⁷⁴ NOAA, *Budget Estimates Fiscal Year 2012, Congressional Submission*, 2011, p. xviii, at https://www.noaa.gov/sites/default/files/atoms/files/NOAAFY12_PB.pdf. Hereinafter NOAA, *FY2012 Budget Estimate*. For more information about the studies, see Michael P. Jackson, et al., *Building Strong for Tomorrow: NOAA Climate Service*, National Academy of Public Administration, September 13, 2010, at https://www.napawash.org/uploads/Academy_Studies/NAPA-Final-Report_NOAA-Climate-Service-Study_September-20101.pdf.

⁷⁵ NOAA, *FY2012 Budget Estimate*, pp. xviii-xx.

⁷⁶ NOAA, *FY2012 Budget Estimate*, p. xx.

⁷⁷ Sara Goodman, "National Climate Service Proposal Sparks Intra-agency Debate," May 5, 2009, at <https://www.eenews.net/eenewspm/stories/77571>.

⁷⁸ E.L. Miles, et al., "An Approach to Designing a National Climate Service," *Proceedings of the National Academy of Sciences*, vol. 103, no. 52 (October 2006), pp. 19616-19623; and National Research Council, *Restructuring Federal Climate Research to Meet the Challenges of Climate Change*, 2009, p. 116, at <https://www.nap.edu/catalog/12595/restructuring-federal-climate-research-to-meet-the-challenges-of-climate-change>.

FY2012.⁷⁹ In recent years, some stakeholders have voiced renewed support for a NOAA-led or other federal agency climate service.⁸⁰

In addition to authorizing activities, in recent years, Congress has directed NOAA to support or implement climate change adaptation activities through explanatory language accompanying appropriations legislation. For example, under S.Rept. 116-127, a report referred to in the explanatory statement accompanying the FY2020 appropriations bill (P.L. 116-93), Congress directed NOAA to consider proposals to the National Oceans and Coastal Security Fund that, among other priorities, would “bolster coastal infrastructure and resilience” and would support research projects that “enhance the coastal resilience of remote communities at most risk to natural disasters and chronic events.”⁸¹ Congress instructed NOAA to further focus on coastal resilience in other parts of the explanatory statement, as well.

Executive Branch Guidance

A range of executive branch documents, including executive orders, DOC organization orders, DOC strategic plans and priorities, NOAA administrative orders, and NOAA strategic plans, guide NOAA’s climate change adaptation activities, in addition to the agency’s statutory authorities.

Executive Orders

The Secretary of Commerce has delegated several climate change adaptation-related provisions within executive orders to NOAA officials and programs.⁸² In addition, some executive orders directly reference NOAA. For instance, E.O. 13653 created the Council on Climate Preparedness and Resilience and identified NOAA, among other agencies, to “complete an inventory and assessment of proposed and completed changes to their land- and water-related policies, programs, and regulations necessary to make the Nation’s watersheds, natural resources, and ecosystems, and the communities and economies that depend on them, more resilient in the face

⁷⁹ U.S. Congress, House Committee on Appropriations, Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Programs for the Fiscal Year Ending September 30, 2012, and for Other Purposes, conference report to accompany H.R. 2112, 112th Cong., 1st sess., November 11, 2011, H.Rept. 112-284, p. 218.

⁸⁰ Monica Medina, “We Need to Expand the National Weather to Provide More Climate Services,” *Our Daily Planet*, November 15, 2019, at <https://www.ourdailyplanet.com/story/the-u-s-needs-to-expand-the-national-weather-service-to-provide-more-climate-services/>; and testimony of the Honorable Alice C. Hill, Senior Fellow for Climate Change Policy, Council on Foreign Relations, in U.S. Congress, House Select Committee on Climate Crisis, *Creating a Climate Resilient America: Reducing Risks and Costs*, 116th Cong., 1st sess., November 20, 2019, Serial No. 116-15 (Washington: GPO, 2020), p. 14.

⁸¹ U.S. Congress, Senate Committee on Appropriations, *Departments of Commerce and Justice, Science, and Related Agencies Appropriations Bill, 202*, report to accompany S. 2584, 116th Cong., 1st sess., September 26, 2019, S.Rept. 116-127, pp. 33 and 47.

⁸² See the section entitled “Departmental Climate Change Adaptation Activities” for more information on those delegated responsibilities.

of a changing climate.”⁸³ In March 2017, E.O. 13783 revoked E.O. 13653. In January 2021, E.O. 13990 revoked E.O. 13783, effectively reinstating E.O. 13653.⁸⁴

E.O. 13677, “Climate-Resilient International Development,” directed multiple agencies, including NOAA, to carry out several climate change adaptation activities.⁸⁵ The executive order directed agencies (1) to work together to “identify and develop, as appropriate, data, decision-support tools and information to allow the screening for and incorporation of considerations of climate-change risks and vulnerabilities” in agency documents and funding decisions; (2) to coordinate efforts to “deliver information on climate-change impacts and make data, tools, and information available to decisionmakers in other countries”; and (3) to participate in the Working Group on Climate-Resilient International Development of the Council on Climate Preparedness and Resilience. The Council on Climate Preparedness and Resilience was discontinued when E.O. 13783 revoked E.O. 13653 in March 2017. In January 2021, E.O. 13990 revoked E.O. 13783, effectively reinstating the council. It is unclear if the council and working group will be reconstituted in the same forms as in the past. Other parts of E.O. 13677 remain in force.

In January 2021, E.O. 14008 directed the NOAA Administrator, among and in coordination with other agency heads, to report to the newly formed National Climate Task Force on “ways to expand and improve climate forecast capabilities and information products for the public” to assist nonfederal entities in preparing for and adapting to the impacts of climate change.⁸⁶ Another section of the executive order required the NOAA Administrator to collect input from fisheries stakeholders on “how to make fisheries and protected resources more resilient to climate change.”

DOC Organization Orders

In addition to DOC departmental administrative orders, described above, DOC issues departmental organization orders (DOOs) on the structure and functions of DOC. Two DOOs provide information on NOAA’s climate change adaptation-related responsibilities. DOO 10-15, which “prescribes the scope of authority and functions of the position of Under Secretary of Commerce for Oceans and Atmosphere and Administrator” of NOAA,⁸⁷ lists the Under Secretary’s responsibilities as assigned by law, including the functions related to an “assessment of global climate change on water resources.”⁸⁸

DOO 25-5 “prescribes the organization, management structure, and assignment of functions” within NOAA.⁸⁹ Among other responsibilities, DOO 25-5 directs

⁸³ E.O. 13653, p. 66820. The resulting assessment laid out strategies and priority actions each agency planned to take, such as fostering “climate-resilient” lands and waters and enhancing “community preparedness and resilience by utilizing and sustaining natural resources” (Council on Climate Preparedness and Resilience Climate and Natural Resources Working Group, *Enhancing the Climate Resilience of America’s Natural Resources*, October 2014, at https://obamawhitehouse.archives.gov/sites/default/files/docs/enhancing_climate_resilience_of_americas_natural_resources.pdf).

⁸⁴ For more information on the executive orders, see **Table 2**.

⁸⁵ E.O. 13677, “Climate-Resilient International Development,” 79 *Federal Register* 58229, September 26, 2014. Hereinafter E.O. 13677.

⁸⁶ E.O. 14008, “Tackling the Climate Crisis at Home and Abroad,” 86 *Federal Register* 7619, January 27, 2021.

⁸⁷ DOC Office of Privacy and Open Government, Departmental Organization Order (DOO) 10-15, Section 1.01, effective December 12, 2012, at https://www.osec.doc.gov/opog/dmp/doos/doo10_15.html. Hereinafter DOO 10-15.

⁸⁸ DOO, 10-15 Section 3.04.j.

⁸⁹ DOC Office of Privacy and Open Government, DOO 25-5, effective May 4, 2015, at <https://www.osec.doc.gov/>

- the Climate Program Office to “represent NOAA in interactions with the international scientific community in the implementation of climate variability and change research.”⁹⁰
- the National Climatic Data Center, now a part of the National Centers for Environmental Information (NCEI), to “collect, document, and make accessible key terrestrial and oceanic paleoclimatic variables required to understand natural climate variability and change” and to “transform sensor data records into climate data records and climate information records for analysis of climate changes and variations.”⁹¹
- the National Oceanographic Data Center, also now a part of NCEI, to “maintain global and national data bases for analysis of long-term ocean climate trends for monitoring global change.”⁹²

The order does not use the term *adaptation* or other related terms, though the functions described in the DOO may support adaptation activities. DOO 25-5 notes that other line offices and programs are required to support climate-related activities (i.e., to provide research and operational climate products and services), as well.

DOC Strategic Plan and Priority Goals

As noted in the section entitled “DOC Departmental Guidance,” the 2018-2022 DOC strategic plan does not include goals and objectives specific to climate change adaptation, although some activities may be related to climate change and climate change adaptation.⁹³ For example, one of the plan’s objectives is for NOAA to help “reduce extreme weather impacts.” The plan does not use the terms *climate change*, *adaptation*, or similar terms.⁹⁴ Previous strategic plans have incorporated explicit climate change adaptation goals and objectives for NOAA.⁹⁵

Congress has also directed federal agencies to develop priority goals to improve the performance and management of the federal government.⁹⁶ NOAA did not use the terms *climate change*, *adaptation*, or similar terms in its 2018-2019 and 2020-2021 agency priority goal to “mitigate

opog/dmp/doos/doo25_5.html. Hereinafter DOO 25-5.

⁹⁰ DOO 25-5, Section 8.04.c. For more information about the Climate Program Office, see <https://cpo.noaa.gov/Who-We-Are/About-CPO>.

⁹¹ DOO 25-5, Section 8.06.g and o. For more information about the National Centers for Environmental Information, see <https://www.ncdc.noaa.gov/>.

⁹² DOO 25-5, Section 8.07.f.

⁹³ DOC, *Strategic Plan 2018-2022*, 2018.

⁹⁴ DOC, *Strategic Plan 2018-2022*, 2018, p. 20.

⁹⁵ For example, the DOC FY2014-FY2018 strategic plan included strategic objectives directing NOAA to lead on climate change adaptation activities, such as (1) advancing the understanding and prediction of changes in the environment through the deployment of new satellites and observation and data gathering systems; advancing ecosystem research, and developing new environmental modeling systems; (2) strengthening the resiliency of communities and regions through building partnerships to produce and deliver climate, extreme event, and environmental information and services and helping communities and regions leverage assets to build capacity for resilience, among other strategies (with the Economic Development Administration); and (3) enabling U.S. businesses to adapt and prosper by developing environmental- and climate-informed solutions through engaging target business sectors to integrate natural capital values in their business models, among other strategies (with the Economics and Statistics Administration) (DOC, *Strategic Plan FY2014-FY2018*, 2015, pp. 23-27).

⁹⁶ 31 U.S.C. §1120.

flood impacts by demonstrating decision support services to emergency managers,” goal action plans, and progress updates.⁹⁷

NOAA Administrative Orders

NOAA administrative orders (NAOs) provide guidance on program matters and administrative policies and procedures;⁹⁸ several NAOs are related to climate change and climate change adaptation. For example, NAO 216-17, “NOAA National Habitat Policy,” states that “NOAA has a responsibility ... to ensure the Nation has a strong foundation and network of healthy habitats that are important for achieving NOAA’s outcomes to increase resilient coastal communities, in which life and property are protected from the impacts of hazards and a changing climate,” among other outcomes.⁹⁹ Further, NAO 216-17 directs NOAA to seek to protect, maintain, and restore ocean, coastal, and Great Lakes ecosystems based on their habitat-related missions and mandates by applying “natural and nature-based infrastructure ... to adapt to long-term climate change,” among other activities.¹⁰⁰

NOAA Strategic Plan

NOAA’s most recent strategic plan was released in December 2010.¹⁰¹ According to the agency, NOAA currently operates under the DOC strategic plan rather than the 2010 NOAA strategic plan, although “NOAA may refer to [NOAA’s strategic plan] for some uses.”¹⁰² As noted in the section entitled “DOC Departmental Guidance,” the 2018-2022 DOC strategic plan does not address climate change or adaptation.

The 2010 NOAA strategic plan detailed four long-term goals. One goal, “climate adaptation and mitigation,” included the following objectives:

- “improved scientific understanding of the changing climate system and its impacts”;
- “assessments of current and future states of the climate system that identify potential impacts and inform science, service, and stewardship decisions”;
- “mitigation and adaptation choices supported by sustained, reliable, and timely climate services”; and

⁹⁷ Performance.gov, “Department of Commerce 2018-2019 Agency Priority Goals,” at <https://www.performance.gov/commerce/2018-2019-apg/>; and Performance.gov, “Department of Commerce,” at https://www.performance.gov/commerce/APG_commerce_3.html.

⁹⁸ NOAA, “NOAA Administrative Orders,” at <https://www.noaa.gov/organization/administration/noaa-administrative-orders>.

⁹⁹ NOAA, “NOAA National Habitat Policy,” NOAA Administrative Order (NAO) 216-17, Section 1.01.c, last reviewed April 8, 2019, at <https://www.noaa.gov/organization/administration/nao-216-17-noaa-national-habitat-policy>. Hereinafter NAO 216-17.

¹⁰⁰ NAO 216-17, Section 4.01.c, last reviewed by NOAA on April 8, 2019. Section 6 lists the statutory mandates and authorities “that direct NOAA’s habitat conservation, scientific, and management work.” DOC, CCAS, 2014 and E.O. 13653 both are listed as references.

¹⁰¹ NOAA, *NOAA’s Next-Generation Strategic Plan*, December 2010, at https://www.performance.noaa.gov/wp-content/uploads/NOAA_NGSP.pdf. Hereinafter NOAA, *Strategic Plan*, 2010.

¹⁰² Email correspondence with NOAA Office of Legislative Affairs, September 1-2, 2020.

- “a climate-literate public that understands its vulnerabilities to a changing climate and makes informed decisions.”¹⁰³

Although the 2010 strategic plan goals were considered in the long term and based on potential alternative scenarios for 2035, the objectives were considered the basis for NOAA’s planning, management, and engagement over five years (2010-2014).¹⁰⁴ Climate change and climate change adaptation also are noted in the plan’s other goals, such as “healthy oceans” and “resilient coastal communities and economies.”¹⁰⁵

Economic Development Administration¹⁰⁶

EDA’s mission is to “lead the federal economic development agenda by promoting innovation and competitiveness, preparing American regions for growth and success in the worldwide economy.”¹⁰⁷

Statutory Authorities

Congress has explicitly directed EDA to support climate change adaptation activities in a few instances. Under statute, some EDA grant programs require applicants to demonstrate that prospective projects align with the region’s Comprehensive Economic Development Strategy (CEDS) or equivalent strategy.¹⁰⁸ EDA periodically updates guidance for the development of the CEDS, which are community-developed, long-term regional planning documents. In 2014, the CCAS identified EDA as the lead agency to “factor resiliency (including resiliency to the effects of climate change) into economic development investments.”¹⁰⁹ The agency was directed to do so by updating the Content Guidelines for the CEDS and by factoring resiliency into its grant-making investment decisions.¹¹⁰ EDA updated the CEDS Content Guidelines, which now include climate change as a consideration in regional economic development planning (e.g., as part of the agency’s definition of *economic resilience* and when accounting for potential natural hazards).¹¹¹

In the explanatory statement accompanying the FY2020 appropriations bill (P.L. 116-93), Congress directed EDA to “encourage applicants to submit proposals [to the Public Works

¹⁰³ NOAA, *Strategic Plan*, 2010, pp. 6-8.

¹⁰⁴ NOAA, *Strategic Plan*, 2010, p. v, and NOAA, *Scenarios for 2035: Long-Term Trends, Challenges, and Uncertainties Facing NOAA*, May 2009, at <https://www.performance.noaa.gov/wp-content/uploads/Scenarios-5-28-09.pdf>.

¹⁰⁵ NOAA, *Strategic Plan*, 2010, pp. 14-23. NOAA also periodically releases Annual Guidance Memoranda “to focus the agency’s corporate attention on near-term execution challenges and a balanced implementation of [NOAA’s] strategy.” In the past, the agency has released annual memoranda with a focus on the next five fiscal years. The most recent memorandum, released in 2013 to cover FY2014-2020, made several mentions of climate change and identified the focus area to “strengthen the production and delivery of climate information and services to inform the management of climate-related risks,” among other areas. NOAA, *NOAA Annual Guidance Memorandum*, August 16, 2013, at https://www.performance.noaa.gov/wp-content/uploads/FY14-20_AGM_Final_Signed_130816.pdf.

¹⁰⁶ For more information about EDA, contact Julie Lawhorn, Analyst in Economic Development Policy.

¹⁰⁷ EDA, “Overview,” at <https://www.eda.gov/about/> and 42 U.S.C. 3121 et. seq.

¹⁰⁸ EDA, “Comprehensive Economic Development Strategy - Overview,” at <https://www.eda.gov/ceds/>, and 42 U.S.C. §3162.

¹⁰⁹ DOC, CCAS, 2014, p. 11.

¹¹⁰ DOC, CCAS, 2014, p. 11.

¹¹¹ EDA, *Comprehensive Economic Development Strategy (CEDS) Content Guidelines: Recommendations for Creating an Impactful CEDS*, February 2020, pp. 3, 12, and 18, at <https://www.eda.gov/files/ceds/CEDS-Content-Guidelines-full.pdf>. Hereinafter EDA, *CEDS Content Guidelines*, 2020.

program] that are resilient to climate change or incorporate green infrastructure solutions.”¹¹² Congress again encouraged EDA to “prioritize” these projects in the explanatory statement accompanying the FY2021 appropriations bill (P.L. 116-260).¹¹³

EDA also has supported climate change adaptation through activities authorized by supplemental appropriations bills for disaster-recovery purposes. For instance, in 2019, Congress enacted the Additional Supplemental Appropriations for Disaster Relief Act, 2019 (P.L. 116-20), which provided EDA with funds for “necessary expenses related to flood mitigation, disaster relief, long-term recovery, and restoration of infrastructure” in areas impacted by selected disasters.¹¹⁴ In August 2019, EDA released a notice of funding opportunity (NOFO) designed to support post-disaster, long-term economic recovery strategies with the supplemental appropriations. The FY2019 disaster recovery NOFO noted that to be competitive, eligible applicants should “clearly incorporate principles for enhancing the resilience... of the relevant community/region or demonstrate the integration of resilience principles into the investment project itself.”¹¹⁵ In the NOFO, EDA defined *resilience* as “the ability of a community or region to anticipate, withstand, and bounce back from various disruptions to its economic base.”¹¹⁶ According to EDA, economic disruptions, or shocks, manifest in various ways and include “impacts of climate change.”¹¹⁷

Executive Branch Guidance

Executive orders and DOC orders currently in force do not explicitly provide guidance to EDA regarding climate change adaptation.¹¹⁸ In addition, the 2018-2022 DOC strategic plan does not include EDA-specific goals and objectives related to climate change adaptation.¹¹⁹ Previous strategic plans, however, included climate change adaptation-specific goals and objectives for EDA.¹²⁰

¹¹² Explanatory statement submitted by Representative Nita Lowey, Chairwoman of the House Committee on Appropriations regarding H.R. 1158, Consolidated Appropriations Act, 2020, *Congressional Record*, vol. 165, part 204 (December 17, 2019), H10961.

¹¹³ H.Rept. 116-455.

¹¹⁴ EDA, “EDA Funding for 2018 Natural Disasters and 2019 Floods and Tornadoes,” at <https://www.eda.gov/disaster-recovery/supplemental/2019/>.

¹¹⁵ EDA, *FY2019 EDA Disaster Supplemental Notice of Funding Opportunity (NOFO)*, p. 4, at <https://www.grants.gov/web/grants/view-opportunity.html?oppId=319126>. Hereinafter EDA, *FY2019 NOFO*. The NOFO states that, “EDA will regard applications that are substantively supported by such strategies as more competitive, while applications for rebuilding damaged infrastructure that are not demonstrably supported by or otherwise related to a long-term plan for economic growth and resilience will not be considered competitive.”

¹¹⁶ EDA, *FY2019 NOFO*, p. 6.

¹¹⁷ EDA, “Economic Resilience,” at <https://www.eda.gov/ceds/content/economic-resilience.htm>.

¹¹⁸ DOC, *Strategic Plan 2018-2022*, 2018 (for more information, see the section entitled, “DOC Departmental Guidance”) and DOC, Office of Privacy and Open Government, DOO 10-4, effective June 16, 2011, at https://www.osec.doc.gov/opog/dmp/doos/doo10_4.html; and DOC, Office of Privacy and Open Government, DOO 45-1, effective July 16, 2010, at https://www.osec.doc.gov/opog/dmp/doos/doo45_1.html.

¹¹⁹ DOC, *Strategic Plan 2018-2022*, 2018. For more information, see the section entitled, “DOC Departmental Guidance.”

¹²⁰ For example, the FY2014-FY2018 DOC strategic plan included a strategic goal regarding helping communities and businesses prepare for and prosper in a changing environment. One of the goal’s underlying objectives was to strengthen the resiliency of communities and regions with EDA and NOAA “help[ing] communities and regions leverage assets to build capacity for resilience.” The plan directed DOC to provide tools, training, assistance, and grants to communities and regions for climate change adaptation (DOC, *Strategic Plan FY2014-FY2018*, 2015, p. 25).

EDA does not have a strategic plan separate from the agency's statement of investment priorities. EDA refers to its five investment priorities as the framework for guiding its competitive grant awards.¹²¹ One of the agency's investment priority areas is recovery and resilience, which includes "projects that assist with economic resilience (including business continuity and preparedness) and long-term recovery from natural disasters and economic shocks to ensure U.S. communities are globally competitive." As noted above, EDA defines *resilience* in the context of economic development.

International Trade Administration¹²²

ITA's mission is to "create prosperity by strengthening the international competitiveness of U.S. industry, promoting trade and investment, and ensuring fair trade and compliance with trade laws and agreements."¹²³ ITA provides export promotion services to U.S. companies, works to enforce and ensure compliance with trade laws and agreements, administers trade remedies for unfair trade practices, and provides analytical support for ongoing trade negotiations. Supported by U.S. and foreign commercial service officers and industry analysts, ITA provides market research, business connections, and other services to promote U.S. exports and attract foreign investment. ITA serves as the primary liaison between U.S. industries and the federal government on trade and investment promotion and provides analytical support for ongoing trade negotiations. In its role promoting United States exports, ITA supports the Trade Promotion Coordination Committee (TPCC), an interagency group chaired by the Secretary of Commerce.

Statutory Authorities

Within ITA's broader mission to promote U.S. exports is statutory language specific to U.S. exports of "environmental technologies." In the Export Enhancement Act of 1992 (P.L. 102-429), Congress established the interagency TPCC to coordinate and set priorities for federal agencies involved in export promotion.¹²⁴ Within the TPCC, Congress directed the President to establish the Environmental Trade Promotion Working Group as a subcommittee to "address issues with respect to the export promotion and export financing of [U.S.] environmental technologies, goods, and services."¹²⁵ The Secretary of Commerce serves as chair of the TPCC and appoints a senior DOC official to chair the environmental trade working group.¹²⁶ ITA supports the TPCC's work within DOC. In 1994, Congress amended the Export Enhancement Act and directed the Secretary of Commerce to establish an advisory committee, the Environmental Technologies Trade Advisory Committee, composed of private sector environmental businesses, trade groups, and other relevant parties, to advise and guide the working group.¹²⁷

¹²¹ EDA, "Investment Priorities," at <https://www.eda.gov/about/investment-priorities/>.

¹²² For more information about ITA, contact Keigh Hammond, Senior Research Librarian.

¹²³ ITA, "About Us," at <https://www.trade.gov/about-us>.

¹²⁴ Title II of the Export Enhancement Act of 1992 (P.L. 102-429), which added Sections 2312 and 2313 to the Omnibus Trade and Competitiveness Act of 1988 (P.L. 100-418), established the Trade Promotion Coordination Committee (TPCC). (15 U.S.C. §4727).

¹²⁵ P.L. 102-429; 15 U.S.C. §4728. The membership of the working group comprise the departments and agencies represented on the TPCC and a representative from the Environmental Protection Agency.

¹²⁶ 15 U.S.C. §4728(b)(3).

¹²⁷ Title IV of P.L. 103-393. 15 U.S.C. §4728(c). For more information about the advisory committee, see [Export.gov](https://www.export.gov/ettac), "Environmental Technologies Trade Advisory Committee," at <https://www.export.gov/ettac>.

The 2014 CCAS directed ITA to “help businesses capitalize on an increased demand for green technologies sparked by a changing climate” by working with the Environmental Technologies Trade Advisory Committee, among other groups, to

- (1) accelerate interagency efforts to expand and improve the types of services and programs supporting these industries, (2) enhance market access overseas and intellectual property rights enforcement, (3) strengthen and tailor trade promotion efforts in these sectors, and (4) develop export markets for U.S. companies by helping trade partners establish policies and regulations that create optimal conditions for deployment of these technologies.¹²⁸

The Export Enhancement Act of 1992, as amended, established the working group but did not define *environmental technologies*. According to ITA, *environmental technologies* comprise four major categories:

1. “Monitoring and assessment: technologies used to establish and monitor the condition of the environment”
2. “Pollution avoidance: equipment and processes used to prevent or minimize the generation of pollutants”
3. “Pollution control: technologies that render hazardous substances harmless before they enter the environment”
4. “Remediation and restoration: technologies used to render hazardous substances harmless”¹²⁹

Recent ITA reports on the industry seem to suggest climate change adaptation tools or services may be within the scope of environmental technologies.¹³⁰

Congress directed the working group to “annually assess which foreign countries have markets with the greatest potential for the export of [U.S.] environmental technologies, goods, and services.”¹³¹ The ITA’s *2019 Top Markets Report on Environmental Technologies* notes climate change and climate change adaptation several times, including in a “Climate Adaptation” section, which states that “climate concerns are leading to a paradigm shift in the configuration of water infrastructure and in how water is managed.”¹³²

Congress further directed the Secretary of Commerce to assign specialists to provide “export promotion assistance to [U.S.] environmental businesses.”¹³³ ITA specialists, including environmental technologies specialists, use their “global presence and international marketing expertise to help U.S. companies sell their products and services worldwide.”¹³⁴ For example, in

¹²⁸ DOC, CCAS, 2014, p. 14.

¹²⁹ Export.gov, “Environmental Technologies Industries,” at <http://web.ita.doc.gov/ete/eteinfo.nsf/068f3801d047f26e85256883006ffa54/4878b7e2fc08ac6d85256883006c452c?OpenDocument>.

¹³⁰ For example, see ITA, *2019 Top Markets Report Environmental Technologies: A Market Assessment Tool for U.S. Exporters*, April 2020, p. 6, at <https://www.trade.gov/sites/default/files/2020-05/2019%20Environmental%20Technologies%20Top%20Markets%20Report.pdf>; and Export.gov, “Mexico Country Commercial Guide: J. Environmental Technologies,” last published October 17, 2019, at <https://www.export.gov/apex/article?id=Mexico-Environmental-Technologies-and-Water>.

¹³¹ P.L. 103-392; 15 U.S.C. §4728.

¹³² ITA, *2019 Top Markets Report Environmental Technologies: A Market Assessment Tool for U.S. Exporters*, April 2020, p. 6, at <https://www.trade.gov/sites/default/files/2020-05/2019%20Environmental%20Technologies%20Top%20Markets%20Report.pdf>.

¹³³ P.L. 103-392; 15 U.S.C. §4728.

¹³⁴ Export.gov, “Mexico Country Commercial Guide: J. Environmental Technologies,” last published October 17, 2019, at <https://www.export.gov/apex/article?id=Mexico-Environmental-Technologies-and-Water>.

ITA's most recent "Mexico Country Commercial Guide," specialists state that "the environmental technologies and water markets in Mexico are poised for growth over the next few years because of Mexico's commitment to addressing climate change," among other factors.¹³⁵

Executive Branch Guidance

The executive branch's current guidance (i.e., executive orders or the 2018-2022 DOC strategic plan) does not explicitly address ITA's responsibilities related to climate change adaptation.¹³⁶ Previous strategic plans, however, incorporated climate change adaptation-specific goals and objectives for ITA.¹³⁷

National Institute of Standards and Technology¹³⁸

NIST's mission is to "promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life."¹³⁹ NIST accomplishes its mission through laboratory programs and support of extramural programs.

Statutory Authorities

NIST carries out the majority of its climate change adaptation activities under authorities not directly related to climate change adaptation. NIST identified several statutory authorities and activities in support of the 2014 CCAS priority adaptation actions.¹⁴⁰ The 2014 CCAS identified NIST as the lead agency to "develop performance-based standards and tools for new and retrofit building designs resistant to extremes of wind, storm surge, and fire that prevent or mitigate collapse."¹⁴¹ For example,

- Congress authorized NIST to deploy teams "after events causing the failure of a building or buildings that has resulted in substantial loss of life or that posed significant potential for substantial loss of life."¹⁴² After Hurricane Maria in 2017, NIST established a National Construction Safety Team to study the hurricane's effects on Puerto Rico.¹⁴³
- Congress established a Fire Research Center at DOC to perform and support research on "all aspects of fire with the aim of providing scientific and technical

¹³⁵ Export.gov, "Mexico Country Commercial Guide: J. Environmental Technologies," last published October 17, 2019, at <https://www.export.gov/apex/article2?id=Mexico-Environmental-Technologies-and-Water>.

¹³⁶ DOC, *Strategic Plan 2018-2022*, 2018.

¹³⁷ For example, the FY2014-FY2018 DOC strategic plan included a strategic goal regarding helping communities and businesses prepare for and prosper in a changing environment. One of the goal's underlying objectives was to enable U.S. businesses to adapt and prosper by developing environmental and climate informed solutions, with ITA directed to boost exports of environmental and clean energy technologies (DOC, *Strategic Plan FY2014-FY2018*, 2015, p. 27).

¹³⁸ For more information about NIST, contact John Sargent, Specialist in Science and Technology Policy.

¹³⁹ NIST, "NIST Mission, Vision, Core Competencies, and Core Values," at <https://www.nist.gov/about-nist/our-organization/mission-vision-values>.

¹⁴⁰ Email correspondence with NIST, Office of Congressional and Legislative Affairs, April 27, 2020.

¹⁴¹ DOC, CCAS, 2014, p. 17.

¹⁴² 15 U.S.C. §7301.

¹⁴³ NIST, "Disaster & Failure Studies: News and Updates," at <https://www.nist.gov/topics/disaster-failure-studies/hurricane-maria/news-and-updates>.

knowledge applicable to the prevention and control of fires.”¹⁴⁴ The Secretary of Commerce delegated these activities to NIST, and the agency is conducting wildland-urban interface fire research, including technical studies of specific fires, to reduce the impact of wildfires on U.S. communities.¹⁴⁵

- Congress directed NIST to coordinate the National Windstorm Impact Reduction Program.¹⁴⁶ In 2018, the program released a strategic plan for windstorm loss reduction, which noted that some causes of windstorm losses “relate to climate system variability and change,” among other factors.¹⁴⁷

In addition, NIST has “been advancing science and developing tools for stakeholders” and has established a Community Resilience Center of Excellence.¹⁴⁸ According to NIST, the center has developed a “tool to support quantitative modeling of options to make communities more resilient” and continues to study the recovery of Lumberton, NC, after flooding resulting from Hurricane Matthew in 2016 and Hurricane Florence in 2018.¹⁴⁹

In March 2019, GAO recommended that DOC, through NIST, “convene federal agencies to provide the best available forward-looking climate information to standards developing organizations” for their consideration in the development of design standards, building codes, and voluntary certifications.¹⁵⁰ More recently, H.Rept. 116-455, accompanying the FY2021 appropriations bill, directed NIST, in collaboration with other federal agencies and nonfederal entities, to

identify a consistent and authoritative set of climate information that emphasizes forward-looking climate data and projection that should be utilized in the standard-setting process. This effort shall serve to aid both Federal and non-Federal bodies to develop standards,

¹⁴⁴ 15 U.S.C. §278f.

¹⁴⁵ NIST, “Wildland-Urban Interface (WUI) Fire Data Collection on Parcel Vulnerabilities,” at <https://www.nist.gov/programs-projects/wildland-urban-interface-wui-fire-data-collection-parcel-vulnerabilities> and NIST, “Fire Risk Reduction in Communities Program,” at <https://www.nist.gov/programs-projects/fire-risk-reduction-communities-program>.

¹⁴⁶ 42 U.S.C. §15703.

¹⁴⁷ Federal Emergency Management Agency, NIST, NOAA, and National Science Foundation, *Strategic Plan for the National Windstorm Impact Reduction Program*, September 2018, p. 7, at https://www.nist.gov/system/files/documents/2018/09/24/nwirp_strategic_plan.pdf.

¹⁴⁸ Email correspondence with NIST, Office of Congressional and Legislative Affairs, April 27, 2020 (hereinafter NIST correspondence, April 27, 2020); and NIST, “Community Resilience Center of Excellence,” at <https://www.nist.gov/coe/community-resilience-center-excellence>.

¹⁴⁹ NIST correspondence, April 27, 2020. The NIST Office of Congressional and Legislative Affairs did not define the term *resilient*. The tool is known as the Interdependent Networked Community Resilience Modeling Environment (IN-CORE; Center for Risk-Based Community Resilience Planning, “IN-CORE,” at http://resilience.colostate.edu/in_core.shtml); NIST, *Community Resilience-Focused Technical Investigation of the 2016 Lumberton, North Carolina Flood, Multi-Disciplinary Approach*, October 2018, NIST Special Publication 1230, at <https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.1230.pdf>; and NIST, “HurriCon2020: Science at the Intersection of Hurricanes and the Populated Coasts,” March 11, 2020, at <https://www.nist.gov/news-events/news/2020/03/hurri-con-2020-science-intersection-hurricanes-and-populated-coast>).

¹⁵⁰ GAO, *High-Risk Series: Substantial Efforts Needed to Achieve Greater Progress on High-Risk Areas*, GAO-19-157SP, March 2019, p. 117, at <https://www.gao.gov/products/GAO-19-157sp> (hereinafter GAO-19-157SP, 2019); and GAO, *Climate Change: Improved Federal Coordination Could Facilitate Use of Forward-Looking Climate Information in Design Standards, Building Codes, and Certifications*, GAO-17-3, November 2016, p. 31, at <https://www.gao.gov/assets/690/681300.pdf> (hereinafter GAO-17-3, 2016). Standards-developing organizations are nonfederal entities, and serve as the “primary source of the standards, codes, and certifications that federal, state, local, and private-sector infrastructure planners follow” (GAO-17-3, 2016, p. 5).

building codes, and voluntary standards that take into account increasingly extreme weather events and other climate change challenges.¹⁵¹

According to NIST, the FY2021 directive is “inconsistent with NIST’s non-regulatory, non-oversight role in the voluntary consensus standards development process.”¹⁵² However, at the request of some Members of Congress, in January 2021, NIST convened federal and nonfederal stakeholders for a one day workshop to discuss forward-looking climate information for potential use by the standards community.¹⁵³ NIST plans to continue, with NOAA, “to collaborate with other appropriate federal agencies and interested nonfederal parties through the U.S. Global Change Research Program and the Mitigation Framework Leadership Group.”¹⁵⁴

Executive Branch Guidance

The executive branch has not explicitly directed NIST to carry out climate change adaptation through current executive or DOC orders. In addition, the 2018-2022 DOC strategic plan does not include goals and objectives for NIST related to climate change adaptation.¹⁵⁵ Previous strategic plans, however, incorporated climate change adaptation specific goals and objectives for NIST.¹⁵⁶

The agency’s most recent programmatic plan highlighted NIST’s work in community resilience from 2017 to 2019 and described the agency’s Community Resilience Center of Excellence and *Community Resilience Planning Guide for Buildings and Infrastructure Systems*.¹⁵⁷ The guide was developed as a “component of the President’s Climate Action Plan” and “offers a process for communities to incorporate short- and long-term measures to enhance resilience,” including adapting to sea-level rise and “anticipated long-term changes in hazards due to climate change.”¹⁵⁸ According to NIST, the agency has worked with several communities to implement the guidance.¹⁵⁹

¹⁵¹ U.S. Congress, House Committee on Appropriations, *Commerce, Justice, Science, and Related Agencies Appropriations Bill, 2021*, report together with minority views to accompany H.R. 7667, 116th Cong., 2nd sess., July 16, 2020, H.Rept. 116-455, p. 25.

¹⁵² Email correspondence with NIST Office of Congressional and Legislative Affairs, January 25, 2021. Hereinafter NIST correspondence, January 25, 2021.

¹⁵³ NIST correspondence, January 25, 2021. For more information about the workshop, see NIST, “Climate Science and Building Codes Workshop,” at <https://www.nist.gov/news-events/events/2021/01/climate-science-and-building-codes-workshop>.

¹⁵⁴ NIST correspondence, January 25, 2021.

¹⁵⁵ DOC, *Strategic Plan 2018-2022*, 2018. For more information, see the section entitled “DOC Departmental Guidance.”

¹⁵⁶ For example, the FY2014-FY2018 DOC strategic plan identified several roles for NIST in ensuring communities and businesses have the necessary information, products, and services to prepare for and prosper in a changing environment. Under this goal, DOC noted NIST’s role in (1) advancing the understanding and prediction of changes in the environment through improving the understanding of greenhouse gas processes (with NOAA); (2) strengthening the resiliency of communities and regions by leading the development of a Disaster Resilience Framework; and (3) enabling U.S. businesses to adapt and prosper by leading the development of standards and tools to assess green building technologies (DOC, *Strategic Plan FY2014-FY2018*, 2015, p. 22-28).

¹⁵⁷ NIST, *NIST Three Year Programmatic Plan 2017-2019*, at https://www.nist.gov/system/files/documents/director/planning/3_year_plan_2017-19_web_ready2.pdf.

¹⁵⁸ NIST, *Community Resilience Planning Guide for Buildings and Infrastructure Systems*, Volume I, NIST Special Publication 1190, May 2016, pp. 2 and 42, at <https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.1190v1.pdf>. The President’s Climate Action Plan was revoked by E.O. 13783 in March 2017.

¹⁵⁹ NIST correspondence, April 27, 2020.

U.S. Patent and Trademark Office¹⁶⁰

The U.S. Constitution provides Congress the power “to promote the Progress of Science and useful Arts, by securing for limited Times to ... Inventors the exclusive Right to their ... Discoveries.”¹⁶¹ The USPTO is the federal agency that fulfills this mandate. Specifically, in accordance with the Patent Act of 1952 (P.L. 82-593),¹⁶² an inventor may seek the grant of a patent by preparing and submitting an application to USPTO. USPTO officials known as examiners then determine whether the invention disclosed in the application merits the award of a patent.¹⁶³ According to USPTO, its mission is “to foster innovation, competitiveness and economic growth, domestically and abroad, by providing high quality and timely examination of patent and trademark applications, guiding domestic and international intellectual property (IP) policy, and delivering IP information and education worldwide.”¹⁶⁴

Congress authorized USPTO to establish regulations that govern the patent application process, including regulations that “facilitate and expedite the processing of patent applications.”¹⁶⁵ The agency may fast-track patent review under its Patent Prosecution Highway and “Track One” prioritized examination programs.¹⁶⁶ The 2014 CCAS identified USPTO as the lead agency to “improve the ability to process patent application filings for climate change adaptation-related technologies in a timely manner.”¹⁶⁷ As of the date of this report, the Patent Prosecution Highway and “Track One” programs exist and can be used to fast-track patent review, however no special consideration is given to climate change adaptation-related technologies. Additionally, the executive branch has not explicitly directed USPTO to carry out climate change adaptation activities through existing executive or DOC orders, or the DOC and USPTO strategic plans or other guidance.

¹⁶⁰ For more information about the USPTO, contact Marcy Gallo, Analyst in Science and Technology Policy.

¹⁶¹ U.S. Constitution, Article I, Section 8, Clause 8.

¹⁶² P.L. 82-593, 66 Stat. 792 (codified at Title 35 of the *United States Code*).

¹⁶³ 35 U.S.C. §131.

¹⁶⁴ DOC, “U.S. Patent and Trademark Office,” at <https://www.commerce.gov/bureaus-and-offices/uspto>.

¹⁶⁵ 35 U.S.C. §2.

¹⁶⁶ USPTO, “Patent Prosecution Highway (PPH) – Fast Track Examination of Applications,” at <https://www.uspto.gov/patents-getting-started/international-protection/patent-prosecution-highway-pph-fast-track>; and USPTO, “USPTO’s Prioritized Patent Examination Program,” at <https://www.uspto.gov/patent/initiatives/usptos-prioritized-patent-examination-program>. Patent examination for technologies also may be expedited under the Accelerated Examination initiative without paying a fee. Under regulation, the Accelerated Examination initiative may expedite review if the basis for the petition is “that the invention will materially: (i) Enhance the quality of the environment; (ii) Contribute to the development or conservation of energy resources; or (iii) Contribute to countering terrorism.” However the term *climate change adaptation* is not specifically used in the regulation (USPTO, “Accelerated Examination,” at <https://www.uspto.gov/patent/initiatives/accelerated-examination> and 37 C.F.R. §1.102).

¹⁶⁷ DOC, CCAS, 2014, p. 14. USPTO has created a subclass to classify these types of technologies, defined by the agency as “technologies that allow adapting to the adverse effects of climate change in human, industrial (including agriculture and livestock), and economic activities.” USPTO, “Cooperative Patent Classification Subclass Y02A, Technologies for Adaptation to Climate Change,” at <https://www.uspto.gov/web/patents/classification/cpc/html/cpc-Y02A.html>.

Other DOC Agencies

DOC includes additional agencies that were not directed to complete specific actions in the 2014 CCAS, such as the Bureau of Economic Analysis,¹⁶⁸ Bureau of Industry and Security,¹⁶⁹ Census Bureau,¹⁷⁰ Minority Business Development Agency,¹⁷¹ National Technical Information Service,¹⁷² and National Telecommunications and Information Administration.¹⁷³ According to the agency guidance documents CRS reviewed, Congress and the executive branch have not explicitly directed these agencies to carry out climate change adaptation activities.¹⁷⁴ The 2018-2022 DOC strategic plan does not include agency-specific goals and objectives related to climate change adaptation for these agencies.¹⁷⁵ Previous strategic plans, however, incorporated climate change adaptation specific goals and objectives for some of these agencies (e.g., Bureau of Economic Analysis and Census Bureau).¹⁷⁶

¹⁶⁸ For more information about the Bureau of Economic Analysis (BEA), contact Jennifer Williams, Specialist in American National Government. BEA's mission is to promote "a better understanding of the U.S. economy by providing the most timely, relevant, and accurate economic accounts data in an objective and cost-effective manner" (BEA, "Who We Are," at <https://www.bea.gov/about/who-we-are>).

¹⁶⁹ For more information about Bureau of Industry and Security (BIS), contact Ian Fergusson, specialist in International Trade and Finance. BIS's mission is to "advance U.S. national security, foreign policy, and economic objectives by ensuring an effective export control and treaty compliance system and promoting continued U.S. strategic technology leadership" (BIS, "About BIS," at <https://www.bis.doc.gov/index.php/about-bis>).

¹⁷⁰ For more information about the Census Bureau, contact Jennifer Williams, Specialist in American National Government. The Census Bureau's mission is to "serve as the nation's leading provider of quality data about its people and economy" (Census Bureau, "What We Do," at <https://www.census.gov/about/what.html>).

¹⁷¹ For more information about MBDA, contact Julie Lawhorn, Analyst in Economic Development Policy. MBDA's mission is "solely dedicated to the growth and global competitiveness of minority business enterprises" (MBDA, "Who We Are," at <https://www.mbda.gov/who-we-are/overview>).

¹⁷² For more information about the National Technical Information Service (NTIS), contact John Sargent, Specialist in Science and Technology Policy. NTIS' role is to help "federal agencies make better decisions about data, with data" (NTIS, "About Us," at <https://www.ntis.gov/about/about-us.html>).

¹⁷³ For more information about the National Telecommunications and Information Administration (NTIA), contact Jill Gallagher, Analyst in Telecommunications Policy. NTIA is "principally responsible by law for advising the President on telecommunications and information policy issues" (NTIA, "About NTIA," at <https://www.ntia.doc.gov/about>).

¹⁷⁴ CRS could not locate a BIS, NTIA, or NTIS strategic plan or similar document. CRS did not locate recent MBDA documents; the agency's FY2009-FY2012 strategic plan was published in 2009, and the most recent annual performance report covers FY2015 (MBDA, "Minority Business Development Agency: Guidance Documents," at <https://www.mbda.gov/guidance>; and MBDA, "Performance," at <https://www.mbda.gov/page/performance>); BEA, *Bureau of Economic Analysis Strategic Plan*, October 2016, at <https://www.bea.gov/sites/default/files/2017-11/2016%20BEA%20Strategic%20Plan.pdf>; BIS, "Mission Statement," at <https://www.bis.doc.gov/index.php/about-bis/mission-statement>; BIS, *Annual Report to the Congress for Fiscal Year 2019*, at <https://www.bis.doc.gov/index.php/documents/pdfs/2540-bis-annual-report-2019/file>; and Census Bureau, *Strategic Plan – Fiscal Year 2018 Through Fiscal Year 2022*, June 2018, at <https://www.census.gov/content/dam/Census/about/about-the-bureau/PlansAndBudget/strategicplan18-22.pdf>.

¹⁷⁵ DOC, *Strategic Plan 2018-2022*, 2018. For more information, see the section entitled "DOC Departmental Guidance."

¹⁷⁶ For example, the FY2014-FY2018 DOC strategic plan noted roles for ESA, comprised of BEA and the Census Bureau. Under the goal of helping communities and businesses prepare for and prosper in a changing environment, DOC stated that ESA's role was to strengthen the resiliency of communities and regions by enhancing coastal intelligence, such as environmental monitoring and socioeconomic data and tools (with NOAA), and to enable U.S. businesses to adapt and prosper by developing environmental and climate informed solutions by engaging targeted business sectors to integrate natural capital values into their business models (with NOAA) (DOC, *Strategic Plan FY2014-FY2018*, 2015, p. 23-27).

DOC Climate Change Adaptation Spending

Few assessments of federal agency spending on climate change, including climate change adaptation activities, exist. For example, in 2018, GAO attempted to estimate total federal agency spending on climate change activities between FY2010 and FY2017 using Office of Management and Budget (OMB) reports to Congress.¹⁷⁷ GAO did not consider OMB's reports to be comprehensive, noting that "several agency budget justifications [GAO] reviewed provided information on climate change activities under multi-purpose programs that were not identifiable within OMB's funding reports."¹⁷⁸ An agency-by-agency comprehensive reporting of potential climate change adaptation spending is beyond the scope of this report, and CRS did not identify other reports on climate change adaptation spending at DOC.¹⁷⁹

DOC agencies carry out a range of climate change adaptation activities, including providing financial assistance to nonfederal entities for adaptation related activities. A comprehensive review of previously and currently available DOC funding opportunities is outside the scope of this report. However, a search of Beta.sam.gov, which includes a government-wide catalog of federal programs, projects, services and activities, for active and inactive assistance listings from DOC that included the term *climate change* since 2010 resulted in 9 results, all administered by NOAA.¹⁸⁰ CRS completed a similar search on Grants.gov, a centralized location for grant seekers to find and apply for federal funding opportunities. A search for the term *climate change* among DOC posts resulted in 269 opportunities since 2010, mostly administered by NOAA, with a smaller portion of opportunities administered by EDA or NIST.¹⁸¹ Additional assistance listings and opportunities related to the terms *climate*, *adaptation*, *resilience*, or similar terms, without the term *climate change*, are not included in these results.

Issues for Congress

Climate change likely will continue to affect aspects of DOC agencies' mission areas and programs. Executive orders issued in January 2021 by the Biden Administration contain new directives and reinstate former executive order mandates specific to DOC and NOAA, as well as

¹⁷⁷ GAO, *Climate Change: Analysis of Reported Federal Funding*, GAO-18-223, April 2018, at <https://www.gao.gov/assets/700/691572.pdf> (hereinafter GAO-18-223). The report primarily focused on selected activities, including clean energy technology, science, and international assistance, with some activities related to climate change adaptation but not always explicitly stated as such. According to the report, the Office of Management and Budget-reported annual climate change funding across all categories increased from \$8.8 billion in FY2010 to \$13.2 billion in FY2017.

¹⁷⁸ GAO-18-223, p. 34.

¹⁷⁹ Congressional Budget Office (CBO) cost estimates may provide additional information about climate change adaptation spending in cases where the proposed legislation explicitly addresses climate change adaptation. For instance, CBO estimated that implementing H.R. 2748 would cost \$6 million over the 2020-2025 period, with spending subject to the availability of appropriated funds (U.S. Congress, House Committee on Natural Resources, *Safeguarding America's Future and Environment Act*, report together with dissenting views to accompany H.R. 2748, 116th Cong., 2nd sess., September 1, 2020, H.Rept. 116-481, pp. 11-12. Hereinafter H.Rept. 116-481).

¹⁸⁰ CRS completed the search on March 25, 2021. Assistance listings included a broad agency announcement; climate and atmospheric research; weather and air quality research; NOAA cooperative institutes; ocean exploration; environmental sciences, applications, data, and education; special oceanic and atmospheric projects; the Office of Coastal Management; and the Integrated Ocean Observing System. Search results reflect the accuracy of data available in beta.sam.gov. As the assistance listings are current as of March 25, 2021, the results may not reflect any additional or newly available opportunities after this date.

¹⁸¹ CRS completed the search on March 25, 2021. Search results reflect the accuracy of data available in grants.gov. As the opportunities are current as of March 25, 2021, the results may not reflect any additional or newly available opportunities after this date.

mandates common to other departments and agencies. In addition to considering whether to codify or modify directives contained in these executive order, Congress may deliberate whether to assess existing DOC climate change adaptation authorities, guidance, activities, and spending. Members also may weigh whether to define *climate change adaptation* or related terms in statute; require agency climate change adaptation strategies to supplement those mandated in executive order provisions; and direct priorities for production, collection, and sharing types of adaptation information. In addition, Congress may consider whether to alter financial assistance authorities in support of adaptation. Congress also may deliberate DOC or agency appropriation levels relative to benefits and priorities, as well as authorities related to adaptation policy.

Existing Climate Change Adaptation Authorities, Guidance, Activities, and Spending

As discussed, Congress and various Administrations have explicitly directed and provided guidance to DOC and its agencies regarding aspects of climate change adaptation. Agencies also may carry out climate change adaptation activities under broader authorities or may perform such activities without explicitly describing the efforts as *climate change adaptation*.

Few evaluations of authorities, guidance, activities, and spending related to federal climate change adaptation exist. For instance, as previously described, a 2018 GAO report found limitations to compiled information on climate change spending. Congress may consider tasking a federal or nonfederal entity with examining current and forthcoming DOC and DOC-agency climate change adaptation authorities, guidance, activities, and related spending. Congress may be interested in determining what authorities and activities exist, how activities are prioritized, and how funds have been appropriated and spent.

Defining *Climate Change Adaptation* or Related Terms

Should Congress mandate an evaluation, it may choose to define *climate change adaptation* or related terms, allow the entity leading the evaluation to do so, or permit DOC and its agencies to use their own definitions. A legislative definition may help to clarify Congress's intent about the character of adaptation. Such a definition also may help to standardize DOC's responses and—if applied across departments and agencies—to facilitate comparisons. Depending on the wording of such a definition, however, the use of only one definition may not encompass new, potentially relevant activities and otherwise may constrain agency flexibility.

Members of Congress introduced legislation in the 116th Congress regarding *climate change adaptation* in regards to DOC and DOC agency activities, but did not define the term. Similarly, several bills contained the term *resilience* in regard to DOC and DOC agency activities, without defining the term or mentioning the *climate change* as part of the definition.¹⁸²

Developing a Climate Change Adaptation Strategy

Exclusive of an assessment of existing climate change adaptation authorities and activities, Congress may consider legislation that would codify or modify directives provided by presidential orders and other actions. As discussed, a January 2021 Biden Administration executive order requires new agency plans to “bolster adaptation and increase resilience” of

¹⁸² For example, H.R. 2189, H.R. 2405, H.R. 3091, H.R. 3919, H.R. 4093, H.R. 4347, H.R. 5685, H.R. 6738, and S. 910, among others in the 116th Congress.

agency facilities and operations to climate change impacts.¹⁸³ Directives in these executive orders also reinstate provisions requiring DOC to develop and implement plans to integrate climate change into agency operations and overall mission objectives.¹⁸⁴ These provisions may overlap in their goals, and it is unclear how the agencies may interpret them. Different Administrations, and the associated changes to executive office guidance, have demonstrated a lack of durability for these types of requirements. Alternatively, some may argue that without legislative direction, Administrations are free to exercise flexibility in their requirements.

In the 116th Congress, Members of Congress introduced several bills that would have tasked the Secretary of Commerce or NOAA Administrator, among others, to develop and implement climate change adaptation strategies or strategies with climate change adaptation components.¹⁸⁵ If similar legislation is proposed in the future, some Members may contend, as they have in the past,¹⁸⁶ that development of new adaptation strategies is duplicative or may argue that the effort is too time-consuming and costly, especially for agencies with small roles in climate change adaptation.

Congress also may consider whether to require DOC and its agencies to develop strategies to provide financial assistance in support of climate change adaptation through existing statutory authorities. Some stakeholders may argue that states and local governments should maintain the ability to prioritize how best to use federal financial assistance. For example, proposed legislation in the 116th Congress would have created a new grant program at NOAA for certain climate change adaptation activities.¹⁸⁷ Some Members stated that the proposed bill “stray[ed] from the long-standing Congressional intent of providing eligible coastal States and territories the flexibility to design programs that best address local challenges by inserting federal priorities into a State-run program.”¹⁸⁸

Sharing Climate Change Adaptation Information

Multiple federal departments and agencies currently share climate change and climate change adaptation information with a variety of federal and nonfederal stakeholders, as required under broad and climate-specific statutory authorities. In addition to these authorities, the Biden Administration’s reinstatement of E.O. 13653 requires DOC and some of its agencies to share climate information in certain ways.¹⁸⁹ GAO recommended designating a federal entity to lead the development of authoritative climate observations and projections for use in federal and nonfederal decisionmaking and creating a national climate information system with defined roles for federal agencies and nonfederal entities with existing statutory authority.¹⁹⁰ GAO did not

¹⁸³ E.O. 14008.

¹⁸⁴ E.O. 13653 required the development of department climate change adaptation strategies, such as the DOC, CCAS, 2014. For more information about E.O. 13653, see the section entitled “Executive Orders and Other Presidential Documents.” For more information about the DOC, CCAS, 2014 see the section entitled “DOC Departmental Guidance.”

¹⁸⁵ For example, see H.R. 2748/S. 1482, H.R. 2795/S. 1499, H.R. 3923, and H.R. 5986/S. 4401 in the 116th Congress.

¹⁸⁶ In the 116th Congress, several Members reiterated federal agency views that requirements in a proposed bill (H.R. 2748) would have been “duplicative of many on-going efforts related to adaptation strategies for fish, wildlife, and plants,” and that the legislation “[was] not needed” (H.Rept. 116-481, p. 14).

¹⁸⁷ H.R. 3115.

¹⁸⁸ U.S. Congress, House Committee on Natural Resources, *Report Together with Dissenting Views to Accompany H.R. 3115*, 116th Cong., 1st sess., November 26, 2019, H.Rept. 116-316, p. 10.

¹⁸⁹ E.O. 13653, p. 66821.

¹⁹⁰ GAO-19-157SP, 2019, pp. 121-122.

specify which federal entity should take on the proposed role, but considered NOAA in its report.¹⁹¹

Congress may consider addressing the types of information DOC and its agencies share and determining the most appropriate way to do so. Among other options, Members may deliberate whether to codify data-sharing requirements under E.O. 13653. In the 116th Congress, some Members of Congress introduced legislation to authorize NOAA to establish a Climate Change Education Program tasked with emphasizing actionable information to promote climate adaptation, among other topics.¹⁹² Another bill would have required NOAA to identify and support research that enables a “consistent, federal set of forward-looking long-term meteorological information” and for NIST to make such information available for use by the public and by the building codes and standards community, among other activities.¹⁹³ Additional considerations could include whether and how DOC agencies should coordinate their information-sharing efforts with other federal and nonfederal entities. Some stakeholders may argue that additional direction could improve the process by which decisionmakers find and use climate change adaptation information.¹⁹⁴ Others may contend, as they have in the past during discussions about a proposed NOAA Climate Service, that several federal agencies have authorities to provide information to federal and nonfederal entities through existing statutes and agency missions.¹⁹⁵

Financial Assistance Authorities to Support Climate Change Adaptation

Some DOC agencies provide financial assistance to nonfederal entities for climate change adaptation activities under broad and climate-specific statutory authorities. Congress may consider whether to direct DOC and its agencies to change existing financial assistance program criteria to direct funding toward certain types of climate change adaptation activities. In the 116th Congress, through explanatory statements accompanying appropriations bills, Congress directed NOAA and EDA to add climate change adaptation activities to the list of eligible activities within several existing financial assistance mechanisms.¹⁹⁶ Some Members of Congress proposed other

¹⁹¹ GAO, *Climate Information: A National System Could Help Federal, State, Local, and Private Sector Decision Makers Use Climate Information*, GAO-16-37, November 2015, p. 47, at <https://www.gao.gov/assets/680/673823.pdf>.

¹⁹² According to NOAA, Congress authorized NOAA’s education programs through several laws. The statutes noted do not mention the term *climate change adaptation* or similar terms. NOAA, *Education Strategic Plan 2015-2035*, p. 5, at https://www.noaa.gov/sites/default/files/atoms/files/2015%20Strategic%20Plan%20Full%20Text%20Web%20Final_0.pdf.

¹⁹³ H.R. 5994 in the 116th Congress. According to NIST, the agency, at the request of the U.S. House of Representatives’ Committee on Appropriations, convened “a one-day virtual workshop between stakeholders in the building codes and standards community and stakeholders in the climate science community.” The workshop’s goal was to “discuss climate science data, models, and tools in the context of the planning needs of the building regulatory community” (NIST, “Climate Science and Building Codes Workshop,” at <https://www.nist.gov/news-events/events/2021/01/climate-science-and-building-codes-workshop>).

¹⁹⁴ For example, see proposed activities from Ocean Conservancy, *Action Agenda for a Blue-Green Future: U.S. Federal Ocean-Climate Recommendations for 2021*, July 2020, at <https://oceanconservancy.org/wp-content/uploads/2020/07/Action-Agenda-for-a-Blue-Green-Future.pdf>. Hereinafter *Action Agenda for a Blue-Green Future*, July 2020.

¹⁹⁵ For more information about the proposed Climate Service, see the section on “Statutory Authorities” in NOAA.

¹⁹⁶ For information about language included in reports accompanying the FY2021 appropriations bill, see the sections on “Statutory Authorities” in NOAA and “Statutory Authorities” in EDA.

changes to boost climate change adaptation activities through existing financial assistance programs administered by NOAA, as well.¹⁹⁷

Congress also could consider the costs and benefits of providing DOC agencies with the authority to create new financial assistance programs. In the 116th Congress, several Members of Congress introduced bills that would have authorized the Secretary of Commerce to create new financial assistance programs at NOAA for nonfederal climate change adaptation research or project implementation, among other topics.¹⁹⁸ Some Members of Congress argued that Congress already had provided the agency with the authority to support some of the proposed activities, stating that the programs were “duplicative” or “fiscally irresponsible.”¹⁹⁹ In 2019, the Assistant Secretary of Commerce for Oceans and Atmosphere noted that NOAA administered grant programs that met the goals of the proposed bills and added that a proposed loan fund program would be outside the agency’s core mission area and would be “challenging.”²⁰⁰ In another hearing, a Member of Congress stated that the proposed bill under discussion would authorize “billions in new grants and programs to distract from the economically devastating policies being pushed.”²⁰¹

Additional Considerations

Congress also may consider other actions related to climate change adaptation activities at DOC and its agencies. For example, Congress could consider changes to appropriations amounts devoted to implementing existing climate change adaptation activities, as advocated by some stakeholders.²⁰² Congress also may deliberate whether to change DOC or agency policies regarding climate change adaptation unrelated to financial assistance. For instance, as some Members proposed in the 116th Congress, Congress might review federally managed species requirements in relation to the potential impacts of climate change and subsequent management options.²⁰³ Whether to continue to include climate change adaptation policy directives in

¹⁹⁷ For example, see provisions in H.R. 8632 in the 116th Congress.

¹⁹⁸ For example, H.R. 2, H.R. 1317, H.R. 1689, H.R. 3115/S. 1730, H.R. 3541, H.R. 3596, H.R. 4269/S. 2452, H.R. 5390/S. 2166, and H.R. 8632 in the 116th Congress.

¹⁹⁹ U.S. Congress, House Committee on Natural Resources, *Report Together with Dissenting Views to Accompany H.R. 3115*, 116th Cong., 1st sess., November 26, 2019, H.Rept. 116-316, p. 10; U.S. Congress, House Committee on Natural Resources, *Report Together with Dissenting Views to Accompany H.R. 3541*, 116th Cong., 1st sess., November 15, 2019, H.Rept. 116-294, p. 10; and U.S. Congress, House Committee on Natural Resources, *Report Together with Dissenting Views to Accompany H.R. 3596*, 116th Cong., 1st sess., November 15, 2019, H.Rept. 116-295, p. 23.

²⁰⁰ Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator Rear Admiral Tim Gallaudet, *Hearing on Legislation Regarding Coastal Resilience*, written testimony, July 25, 2019, at <https://naturalresources.house.gov/imo/media/doc/Gallaudet%20Testimony%20-%20Sub%20on%20WOW%20Leg%20Hrg%2007.25.19.pdf>.

²⁰¹ U.S. Congress, House Committee on Natural Resources, *Opening Statement by Ranking Member Rob Bishop*, legislative hearing on H.R. 8632, the Ocean-Based Climate Solutions Act, and H.R. 3548, H.R. 3919, H.R. 4093, H.R. 5390, H.R. 5589, H.R. 7387, H.R. 8253, H.R. 8627, 116th Cong., 2nd sess., November 17, 2020, at <https://www.congress.gov/116/meeting/house/111092/documents/HMTG-116-II00-MState-B001250-20201117.pdf>.

²⁰² For example, some stakeholders have called for increased appropriations for programs related to coastal restoration and resilience programs and topics, such as NOAA’s National Oceans and Coastal Security Fund and the Coastal and Estuarine Land Conservation Program; tribal climate change adaptation; and ocean acidification (Jean Flemma, Miriam Goldstein, and Anne Merwin, “An Ocean and Climate Agenda for the New Administration,” *Center for American Progress*, January 15, 2021, at <https://www.americanprogress.org/issues/green/news/2021/01/15/494669/ocean-climate-agenda-new-administration/> [hereinafter “An Ocean and Climate Agenda,” January 2021]; and *Action Agenda for a Blue-Green Future*, July 2020).

²⁰³ For example, see provisions in H.R. 8632 in the 116th Congress and proposed activities in “An Ocean and Climate Agenda,” January 2021, and *Action Agenda for a Blue-Green Future*, July 2020.

appropriations bills or accompanying explanatory statements and committee reports also may be a part of legislative discussions. Whether and for how long an agency may implement these types of provisions may depend on if the provision is in law versus in an accompanying congressional report. Provisions may be further affected by their inclusion in an appropriations bill, as the appropriations bill is presumed temporary unless it explicitly indicates futurity or is of “general character bearing no relation to the object of the appropriation.”²⁰⁴

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²⁰⁴ GAO, *Principles of Federal Appropriations Law, Chapter 2: The Legal Framework, Fourth Edition*, 2016, GAO-16-464SP, p. 2-86.