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ENVIRONMENTAL DECONFLICTION 2020: THE NATIONAL DEFENSE AUTHORIZATION ACT FOR FY 2020

by Rachel Jacobson and Matthew F. Ferraro

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SUMMARY

As in prior years, the National Defense Authorization Act for Fiscal Year 2020 contains a variety of provisions setting U.S. Department of Defense priorities for energy, environmental, and natural resource issues. These include measures that represent some degree of consensus on these often-politicized topics. In this Article, the third in an annual series, the authors canvass how the Act addresses a host of issues in the areas of climate resiliency, energy management, hazardous substances, and environmental and natural resource management, and its implications for practitioners in these areas.

The global coronavirus pandemic has touched all parts of society, including the omnibus yearly defense policy bill, the National Defense Authorization Act (NDAA). At this writing, the U.S. Congress is close to agreeing on the final language of the NDAA for Fiscal Year 2021, which will likely include several provisions to address the virus. For example, the bill passed by the U.S. Senate includes provisions for hazardous duty pay and health benefits for members of the Armed Forces and National Guard performing duty in response to the disease, authorizes millions of dollars in defense funding for research for a coronavirus vaccine, and even directs the Secretary of Energy to make available unclassified high-performance computing power, which is usually used to maintain the nation's nuclear stockpile, "for research relating to the coronavirus disease."[1]

To casual observers, these may appear to be unusual uses of the defense law. But, in truth, the NDAA does far more than merely authorize the purchase of munitions and compensate the troops. As a must-pass bill with a top-line authorization of hundreds of billions of dollars, it sets national defense policy. Given the size and breadth of the U.S. military and the U.S. Department of Defense (DOD), it can have national and, indeed, global ramifications far beyond conventional defense and security issues.

In particular, the NDAA's influence is felt keenly on matters affecting energy, environment, and natural resources policy. The U.S. military is the world's single largest energy consumer and one of the world's leading greenhouse gas emitters.[2] It manages more than 27 million acres—twice the size of all American state parks combined—and oversees hundreds of species whose primary habitat is found on DOD land. DOD employs hundreds of experts involved in natural resource management, and its investments have helped protect more than 500 million acres of conservation and farmland.[3] With military bases dotting the earth, DOD's environmental and energy reach often surpasses that of other federal agencies, and DOD's budget exceeds by orders of magnitude the total budgets of several federal

1. National Defense Authorization Act for Fiscal Year 2021, S. 4049, 116th Cong. §§602, 705, 4201, 3166 (as passed by the Senate July 23, 2020), https://www.congress.gov/bill/116th-congress/senate-bill/4049/text.

2. Neta C. Crawford, *The Defense Department Is Worried About Climate Change—And Also a Huge Carbon Emitter*, The Conversation, June 12, 2019, https://theconversation.com/the-defense-department-is-worried-about-climate-change-and-also-a-huge-carbon-emitter-118017.

3. Ya-Wei Li & Tim Male, Environmental Policy Innovation Center, The Conservation of Defense: Opportunities to Promote Conservation Through Military Readiness 4 (2020), http://policyinnovation.org/wp-content/uploads/Conservation-of-Defense.pdf.

agencies. Accordingly, as we have written of previous such bills, the NDAA may be one of the most significant pieces of energy and environmental legislation most people have never heard of.

The NDAA for Fiscal Year 2020 (S. 1790), signed into law on Friday, December 20, 2019, continues that tradition.[4] At almost 1,120 pages, the 2020 NDAA authorized $738 billion in defense spending for fiscal year 2020, including a base budget of $658.4 billion and an additional $71.5 billion for overseas contingency operations.[5] It sets major priorities and directs innovative strategies and deployments of the best available science to address energy, environmental, and natural resource challenges. It is striking, as well, for being the product of divided government—the Democratic-controlled U.S. House of Representatives and the Republican-controlled Senate came to agreement on the bill on schedule, even after significant legislative wrangling, and a Republican president signed it.

Notably, the 2020 NDAA directs considerable defense-related investments into studying and preparing for the impacts of climate change on the military. It mandates that the resilience of military infrastructure to climate change be afforded substantial attention in construction and maintenance. The law promotes DOD's use of clean energy and energy efficiency, and it seeks to mitigate the effects of legacy pollution, specifically emerging contaminant per- and polyfluoroalkyl substances (PFAS), by banning their use in firefighting foam. It also authorizes billions of dollars for environmental cleanup, authorizes appropriations for the construction of port infrastructure with corresponding streamlined environmental reviews, and promotes marine health by seeking to inhibit illegal fishing.

As a military measure with broad bipartisan support, the NDAA tends to avoid language that to some carries controversial political meanings. For example, it speaks only sparingly of "climate change," although the term "resilience" is used frequently, and certain provisions refer to "environmental conditions" as code for climate change. And its policy pronouncements remain tethered to the exigencies of military necessity, as they must as part of a defense authorization bill.

Many of Congress' efforts to shape policy on environmental and energy issues for DOD began in previous years and have only accelerated in this NDAA. These include the NDAA's emphasis on strengthening the resilience of military installations in the face of a changing climate, studying and mitigating flood risks, preparing for threats in a warming Arctic Ocean, encouraging energy efficiency, curbing PFAS use and addressing its aftermath, and stopping the utilization of open burn pits, among others.

The law presages neither revolution nor the maintenance of the status quo, but a deepened commitment to addressing DOD's environmental, energy, and natural resources priorities. Like any large and complicated law, the 2020 NDAA furthers several goals at the same time and prioritizes some over others. Although not highly charged politically, and with consistent bipartisan support, the NDAA advances political interests, authorizes the funding for what some might consider parochial projects, directs the development of national strategies, ensures that the United States maintains an unsurpassed military, and—through a combination of small steps and grand visions—advances serious policy.

In this Article, the third in a yearly series,[6] we provide an overview of the 2020 NDAA's major provisions as they relate to energy, the environment, and natural resources. Those provisions can generally be grouped into four broad categories: (1) climate resiliency; (2) energy management; (3) PFAS and hazardous chemicals; and (4) environment and natural resources management.

Among the provisions analyzed, the most significant include the following:

Climate and Infrastructure Resiliency

- *Assessing and combatting climate change*. DOD will launch a research and development program to study and test "carbon capture" technology, which could remove greenhouse gases from the atmosphere and support re-use of collected carbon for manufacturing. DOD will develop a tool to assess the vulnerability of its installations to "extreme weather" and submit in future budgets a dedicated line item for extreme-weather-related adaptation and mitigation measures. The U.S. intelligence community will also establish a special council to advise on climate security.

- *Disaster response*. DOD will issue reports on improving the military's response to domestic disasters and launch a pilot program to improve the coordination between civilian and military medical capabilities in crises.

- *Infrastructure and installations resilience*. The 2020 NDAA makes significant changes to military construction, placing installation resilience closer to the heart of its analysis of existing and new construction than ever before.

- *Port infrastructure*. The 2020 NDAA includes the Ports Improvement Act, which authorizes appropriations to state and local governments to improve

4. National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92, 133 Stat. 1198 (2019) [hereinafter 2020 NDAA], https://www.congress.gov/bill/116th-congress/senate-bill/1790/text.

5. Amanda Macias, *Trump Signs $738 Billion Defense Bill. Here's What the Pentagon Is Poised to Get*, CNBC, Dec. 20, 2019, https://www.cnbc.com/2019/12/21/trump-signs-738-billion-defense-bill.html.

6. Rachel Jacobson & Matthew F. Ferraro, *Environmental Deconfliction 2019: The National Defense Authorization Act for FY 2019*, 49 ELR 10220 (Mar. 2019), *available at* https://elr.info/news-analysis/49/10220/environmental-deconfliction-2019-national-defense-authorization-act-fy-2019; Rachel Jacobson et al., *Environmental Deconfliction: The National Defense Authorization Act for Fiscal Year 2018 and Its Implications for Energy, Environment, and Natural Resources*, 18 Pratt's Energy L. Rep. 223 (2018), *available at* https://www.wilmerhale.com/en/insights/publications/20180720-environmental-deconfliction-the-national-defense-authorization-act-for-fiscal-year-2018-and-its-implications-for-energy-environment-and-natural-resources.

ports. It is particularly focused on marine terminal equipment, intermodal infrastructure, environmental mitigation measures, and operational improvements. Conspicuously, it encourages expedited environmental reviews and authorizes the U.S. Coast Guard to perform remedial actions to get the projects underway quickly. Accordingly, this section amounts to a mini-infrastructure package with streamlined environmental requirements.

- *Preparing for a warming Arctic*. DOD will issue reports to Congress on the activities of foreign rivals Russia and China in the Arctic region, prepare for disasters in that area of operations, and designate specific strategic ports there.

Energy Management

- *Energy resilience*. The NDAA promotes energy cost savings through changes in federal law, the writing of reports, and the holding of exercises that anticipate power loss.

PFAS and Remediation of Contaminated Military Installations

- *PFAS*. The NDAA, which incorporates the PFAS Act of 2019 and the PFAS Damages Act of 2019, is to date the only federal legislation reacting to recent widespread attention on chemicals known as PFAS. The NDAA bans their use in firefighting foam for military purposes and collects data that could have major impacts on how responsibility for PFAS remediation is allocated, among other congressional directives aimed at PFAS contamination.

- *Open burn pits*. The defense bill furthers efforts advanced over the past several years to remediate the health effects wrought by the use of open burn pits in war zones. The NDAA directs the closure of all open burn pits and directs the gathering of information related to the health impacts of open burn pits.

- *Other hazardous materials*. The law directs DOD to submit a "second opinion" on the level of radioactive material in the groundwater near a former military base at Bethpage, New York. The NDAA also allows DOD to reimburse the U.S. Environmental Protection Agency (EPA) for the cleanup of an ammunition plant in Minnesota.

Environment and Natural Resource Management

- *Environmental cleanup*. The law authorizes billions of dollars in environmental cleanup at military sites in the United States and in Vietnam. It also authorizes greater funding for the Readiness and Environmental Protection Initiative (REPI) program, which promotes public-private partnerships in conserving natural habitats near military bases, including National Guard facilities.

- *Marine management*. The NDAA incorporates a law to reduce the practice of unreported and unregulated fishing, which can harm marine life, and makes related maritime policies.

- *Recycling*. The NDAA artfully encourages military bases to recycle by raising the amount of proceeds from recycling that a base can use toward soldiers' morale and welfare.

I. Overview of Authorization and Appropriations Processes

Congress has the constitutional authority to appropriate money from the U.S. Treasury to fund the federal government.[7] Congress exercises this authority through a two-step authorization-appropriations process. First, Congress enacts an authorization measure that authorizes the appropriation of funds for specific purposes. Second, Congress must enact an appropriations law (or budget bill) to provide funds for the authorized agency, program, or activity.[8] Both bills must be signed by the president to become law.

The House Armed Services Committee (HASC) and the Senate Armed Services Committee (SASC) have jurisdiction over the NDAA, which authorizes the appropriations of funds for DOD, nuclear weapons programs of the U.S. Department of Energy (DOE), and defense elements of the U.S. intelligence community.

The NDAA also "establishes defense policies and restrictions, and addresses organizational administrative matters related to the DOD."[9] The HASC and SASC work in parallel. Each committee holds hearings and writes its own national defense authorizing legislation, both of which are then reconciled by a conference committee. Once both houses of Congress approve the reconciled bill, it is presented to the president for his signature.

The House and Senate approved the conference version of the 2020 NDAA on December 11, 2019, and December 17, 2019, respectively. It was presented to the president on December 19, 2019, and signed into law the next day.[10]

As the authorization bill itself does not appropriate funding, DOD and other federal agencies must rely on congressional passage of a spending bill to spend the money needed to implement authorized programs. On December 20, 2019, President Donald Trump signed into

7. U.S. Const. art. I, §9, cl. 7.
8. *See* Bill Heniff Jr., Congressional Research Service, RS20371, Overview of the Authorization-Appropriations Process 1 (2012), https://www.senate.gov/CRSpubs/d2b1dc6f-4ed2-46ae-83ae-1e13b3e24150.pdf.
9. Valerie Heitshusen & Brendan W. McGarry, IF10515, Congressional Research Service, Defense Primer: The NDAA Process 1 (2016), https://fas.org/sgp/crs/natsec/IF10515.pdf.
10. Congress.gov, *Actions Overview S. 1790—116th Congress (2019-2020)*, https://www.congress.gov/bill/116th-congress/senate-bill/1790/actions?KWICView=false (last visited Oct. 8, 2020).

law a pair of appropriations bills, allocating $1.4 trillion to federal agencies—$738 billion to DOD and $632 billion to all non-defense agencies—averting a government shutdown that would have occurred when a stopgap funding law would have expired at the end of that day.[11]

II. Climate and Infrastructure Resiliency

A. Assessing and Combatting Climate Change

The NDAA advances several innovations to contend with a changing climate. First, it establishes a pilot program to remove carbon from the air. Second, it directs the development of tools to assess extreme-weather risk to military installations and networks. Third, it adds a dedicated line to the annual DOD budget to account for the cost of adaptation and mitigation to extreme weather. Fourth, it directs the establishment of the Climate Security Advisory Council within the intelligence community to inform policymakers of threats related to climate change.

Section 223—Direct Air Capture and Blue Carbon Removal Technology Program. Carbon capture is a chemical process by which carbon dioxide is separated from the ambient air so it can be used either to make products or stored in geological reservoirs.[12] Carbon removed from seawater is known as "blue carbon." These processes can reduce the amount of carbon in the atmosphere, mitigating global greenhouse effects, and they can lead to a source of carbon-based manufacturing.[13]

The NDAA takes a major step toward furthering cutting-edge research and deployment of this technology. The law directs the Secretary of Defense, in coordination with the Secretary of Homeland Security, the Secretary of Energy, and the heads of other federal agencies, to conduct a research and development program called the Direct Air Capture and Blue Carbon Removal Technology Program. The program will study and test how to capture carbon dioxide from "sea water and the air to turn such carbon dioxide into clean fuels to enhance fuel and energy security." It also directs the development and demonstration of technologies to reuse such carbon dioxide "to create products for military uses," and to develop direct air capture technologies for use "at military institutions or facilities" or "in modes of transportation by the Navy or Coast Guard."[14]

The provision has its origins in a bill authored by Sens. Sheldon Whitehouse (D-R.I.), Jack Reed (D-R.I.), and Dan Sullivan (R-Alaska) called the Securing Energy for Our Armed Forces Using Engineering Leadership (SEA FUEL) Act, to spur military innovation in carbon capture technology. Senator Whitehouse has noted that "[t]he U.S. Navy has already patented a technology that would remove excess carbon dioxide from ocean water and turn it into fuel."[15]

Section 326—Development of Extreme Weather Vulnerability and Risk Assessment Tool. In a significant directive, the NDAA requires DOD to consult with the Administrator of EPA, the Secretary of Energy, the administrator of the National Oceanic and Atmospheric Administration, and other department heads to determine whether there exists a "climate vulnerability and risk assessment tool" available or adaptable "to be used to quantify the risks associated with extreme weather events and the impact of such events on networks, systems, installations, facilities, and other assets." Such a tool will "inform mitigation planning and infrastructure development." Before choosing a tool, the Secretary must use the "best publicly available science for the prediction of extreme weather risk and effective mitigation of that risk." And if no such tool exists, the Secretary must inform Congress of the DOD plan to develop one.[16]

Section 328—Budgeting of Department of Defense Relating to Extreme Weather. This section requires DOD to submit as part of its annual budget request a "dedicated budget line item for adaptation to, and mitigation of, effects of extreme weather on military networks, systems, installations, facilities, and other assets and capabilities of the Department of Defense." The budget line must include an estimate of the "anticipated adverse impacts to the readiness of the Department and the financial costs to the Department during the year covered by the budget." The impacts and costs must be accounted for by each military department agency and component of DOD. "Extreme weather" is defined as "recurrent flooding, drought, desertification, wildfires, and thawing permafrost."[17]

This is an important milestone. As the American Security Project observed, "the dedicated budget line will dedicate funds for the military to respond to those [extreme weather events]. In past years, the lack of dedicated funding for adaptation has undermined the ability to seriously address the threat."[18]

Section 5321—Establishment of Climate Security Advisory Council. Section 5321 of the 2020 NDAA amends the National Security Act of 1947,[19] which estab-

11. Eric Katz, *Trump Signs 2020 Spending Bills, Averting Midnight Shutdown*, Gov't Executive, Dec. 20, 2019, https://www.govexec.com/management/2019/12/president-trump-signs-spending-bills-averting-midnight-shutdown/162069/.
12. Institute for Carbon Removal Law and Policy, Carbon Removal Fact Sheet: DACCS (2018), https://www.american.edu/sis/centers/carbon-removal/upload/icrlp_fact_sheet_daccs_181005.pdf.
13. James Mulligan et al., World Resources Institute, Technological Carbon Removal in the United States (2018), https://www.wri.org/publication/tech-carbon-removal-usa.
14. 2020 NDAA §223(a)(C).
15. Press Release, Office of Sen. Sheldon Whitehouse, Senate Approves Military Funding Bill With Whitehouse's Bipartisan Energy Amendments (June 27, 2019), https://www.whitehouse.senate.gov/news/release/senate-approves-military-funding-bill-with-whitehouses-bipartisan-energy-amendments; Press Release, Office of Sen. Sheldon Whitehouse, Whitehouse, Reed, Sullivan Introduce Bipartisan Bill to Improve Military's Energy Security (May 23, 2019), https://www.whitehouse.senate.gov/news/release/whitehouse-reed-sullivan-introduce-bipartisan-bill-to-improve-militarys-energy-security.
16. 2020 NDAA §326(a), (c), (d).
17. *Id.* §328(a), (c).
18. Esther Sperling, *Climate Security in the National Defense Authorization Act*, Am. Security Project, Dec. 13, 2019, https://www.americansecurityproject.org/climate-security-in-the-national-defense-authorization-act/.
19. 50 U.S.C. §§3021 et seq.

lished the post-war structure of the U.S. national security enterprise, to require the director of national intelligence to establish the Climate Security Advisory Council.[20] Originally introduced by Rep. Denny Heck (D-Wash.), a member of the House Permanent Select Committee on Intelligence, this provision is intended to give the intelligence community—the 17 federal intelligence agencies and departments that conduct intelligence work[21]—"the tools necessary to study and prepare for climate-related security challenges," in Representative Heck's words[22]:

> This council will have the purpose of
>
> (1) assisting intelligence analysts of various elements of the intelligence community with respect to analysis of climate security and its impact;
>
> (2) facilitating coordination between the elements of the intelligence community and elements of the Federal Government that are not parts of the intelligence community in collecting data on, and conducting analysis of, climate change and climate security; and
>
> (3) ensuring that the intelligence community is adequately prioritizing climate change in carrying out its activities.[23]

The law also establishes duties and responsibilities of the council that include assessing and determining the best practices for climate security analysis and for the dissemination of "climate intelligence indications and warnings," conducting data exchange among the intelligence community and with other parts of the federal government, and convening conferences, among other responsibilities.

The council will be composed of officials from the National Intelligence Council, whose head will chair the new group, and the lead official "with respect to climate and environmental security analysis" from a range of intelligence agencies, including the Central Intelligence Agency, U.S. Department of State, and Defense Intelligence Agency. It will also include three officials from federal government elements not part of the intelligence community responsible for "providing decision makers with a predictive understanding of the climate," "making observations" of the earth system for use by the public and policymakers, or coordinating federal research in understanding global environmental impacts on society.

The law defines "climate security" and "climate intelligence indications and warnings." Climate security is defined as the effects of climate change on:

> (A) The national security of the United States, including national security infrastructure.
> (B) Subnational, national, and regional political stability.
> (C) The security of allies and partners of the United States.
> (D) Ongoing or potential political violence, including unrest, rioting, guerrilla warfare, insurgency, terrorism, rebellion, revolution, civil war, and interstate war.[24]

It defines "climate intelligence indications and warnings" as "developments relating to climate security with the potential to . . . imminently and substantially alter the political stability or degree of human security in a country or region," or "imminently and substantially threaten" the United States' national security, the interests of allies and partners, or U.S. citizens abroad.[25]

The creation of the Climate Security Advisory Council is notable because it is yet another indication of the institutionalization of climate security and climate resiliency within the federal national security community. This institutionalization may, in time, depoliticize climate issues given their significant security implications.

B. Disaster Response

DOD provides critical support to civil authorities during emergencies. "If an individual state cannot meet its emergency response needs, it will request federal assistance," DOD writes.[26] For example, to help address the flooding and damage caused by Hurricane Florence in September 2018, the military supported response efforts with more than 13,000 soldiers, 3,000 vehicles, and dozens of airplanes and watercraft.[27]

Section 520A—Report on Methods to Enhance Domestic Response to Large-Scale, Complex, and Catastrophic Disasters. The NDAA requires the Secretary of Defense to submit to Congress a report on the current policy and processes whereby governors can request activation of the National Guard as part of the response to large-scale, complex, and catastrophic disasters. It directs that the assessment be informed by consultation with a range of federal agencies. The report must assess the benefits and protections provided to military members employed as part of the response to large-scale disasters. The Secretary has 180 days after the NDAA's enactment to submit the report, which is to be developed in consultation with the Federal Emergency Management Agency, the National Security Council, the Council of Governors, and the National Governors Association.[28]

Section 740—Pilot Program on Civilian and Military Partnerships to Enhance Interoperability and Medical Surge Capability and Capacity of National Disaster Medical System. A national disaster can over-

20. 2020 NDAA §5321(a).
21. Office of the Director of National Intelligence, *Members of the IC*, https://www.dni.gov/index.php/what-we-do/members-of-the-ic (last visited Oct. 8, 2020).
22. Press Release, Office of Rep. Denny Heck, Rep. Heck's Climate Security Initiative Included in Defense Authorization Package (Dec. 10, 2019), https://dennyheck.house.gov/media-center/press-releases/rep-heck-s-climate-security-initiative-included-in-defense-authorization.
23. 2020 NDAA §5321(a).
24. *Id.* §120.
25. *Id.* §5321(a).
26. DOD, *How Does the Defense Department Help With Disasters?*, https://www.defense.gov/ask-us/faq/Article/1743463/how-does-the-defense-department-help-with-disasters/ (last updated Mar. 12, 2019).
27. Jacobson & Ferraro, *supra* note 6, at 10224 (citing DOD article).
28. 2020 NDAA §520A (discussing 32 U.S.C. §502).

whelm the medical resources of states and localities. In those situations, the National Disaster Medical System (NDMS), a federally coordinated healthcare system and partnership of DOD and the Departments of Health and Human Services, Homeland Security, and Veterans Affairs acts to supplement local medical systems.[29] The 2020 NDAA supports these efforts by directing the writing of two reports—on methods to enhance DOD's domestic response to disasters and on DOD's plans for major disasters in the Arctic—and by the launching of a pilot program to improve interoperability between NDMS and the civilian sector.

The NDAA authorizes the Secretary of Defense to conduct a pilot program to enhance interoperability and medical surge capability and capacity of the NDMS. The pilot will involve a partnership with public, private, and nonprofit healthcare organizations in collaboration with the Secretaries of Veterans Affairs, Health and Human Services, Homeland Security, and Transportation. The Secretary of Defense is to submit an initial report to the HASC and SASC, not later than 180 days after commencement of the pilot program, and a final report to the same committees within 180 days of the completion of the program.[30] This pilot program is valuable to disaster relief because of the role the NDMS has in buttressing the work of civil authorities during emergencies.

C. *Infrastructure and Installations Resilience*

The U.S. military is a major global landowner and engages in massive construction operations. It spends billions of dollars a year, all authorized by the NDAA, to build and maintain a far-flung network of facilities and infrastructure.[31] The 2020 NDAA enacts major environmental policy by altering how some of that infrastructure is maintained and built. It also aims to increase the talent and investment in what it terms "infrastructure resilience" or "military installation resilience," and it requires changes in DOD's planning documents, directing that they take into consideration the projected changes in sea-level rise and the long-term effects of climate change. Finally, the NDAA contains a stand-alone infrastructure bill, the Ports Improvement Act, which authorizes appropriations for the construction of maritime infrastructure with streamlined environmental reviews.

Section 218—Modification of Authority and Addition of Technology Areas for Expedited Access to Technical Talent. The NDAA amends a portion of the fiscal year 2018 NDAA to add "infrastructure resilience" to a list of technical topics for which the Secretary of Defense or the secretaries of the military departments may establish "task order contracts, consortia, cooperative agreements, or other arrangements to facilitate expedited access to university technical expertise, including faculty, staff, and students."[32] This change in the law empowers DOD to expedite the use of academic expertise to address challenges to infrastructure resulting from climate change, among other threats.

Section 327—Removal of Barriers That Discourage Investments to Increase Military Installation Resilience. The 2020 NDAA directs the Secretary of Defense to identify and seek to remove "barriers that discourage investments to increase military installation resilience." (See below for discussion of the term "military installation resilience.") The Secretary must identify and seek to remove policies that "unintentionally increase[ ] the vulnerability of systems to . . . extreme weather events" and, at least once every four years, develop and update an "adaptation plan" that assesses how climate impacts affected DOD's ability to accomplish its mission. The plan must also assess the short- and long-term actions the Department can take to "ensure military installation resilience."[33]

The aim of this section is to provide assessments that the military can use to understand vulnerabilities in its military installations' resilience and be better positioned to address those vulnerabilities, as the American Security Project observed.[34]

Section 359—Strategy to Improve Infrastructure of Certain Depots of the Department of Defense. The NDAA requires development of a DOD strategy to improve the infrastructure of DOD depots, including an assessment of the "vulnerability of the depot to adverse environmental conditions and, if necessary, the investment required to withstand those conditions." The law also requires an annual report on progress to implement this strategy.[35]

Section 2801—Military Installation Resilience Plans and Projects. Pursuant to federal law, the military produces "installation master plans" for all major military installations.[36] Under the 2020 NDAA, these master plans must now include information on "military installation resilience." The term was inserted into the federal code by the 2019 NDAA,[37] and it is defined as

> the capability of a military installation to avoid, prepare for, minimize the effect of, adapt to, and recover from *extreme weather events*, or from anticipated or unanticipated *changes in environmental conditions*, that do, or have the potential to, *adversely affect the military installation* or essential transportation, logistical, or other necessary resources outside of the military installation that are necessary in order to maintain, improve, or rapidly

29. Public Health Emergency, *National Disaster Medical System*, https://www.phe.gov/Preparedness/responders/ndms/Pages/default.aspx (last reviewed Oct. 7, 2020). The NDMS also supports major national events, like presidential inaugurations and national party conventions.
30. 2020 NDAA §740.
31. G. James Herrera, Congressional Research Service, R44710, Military Construction: Authorities, Process, and Frequently Asked Questions 1 (2019), https://fas.org/sgp/crs/natsec/R44710.pdf.
32. 2020 NDAA §218(a) (modifying §217(a)(1) of the National Defense Authorization Act for Fiscal Year 2018, Pub. L. No. 115-91, 131 Stat. 1283 (2017); 10 U.S.C. §2358 note, which is quoted here).
33. *Id.* §327(a).
34. Sperling, *supra* note 18.
35. 2020 NDAA §359(a), (b)(1)(A)(vii), (c).
36. 10 U.S.C. §2864.
37. Jacobson & Ferraro, *supra* note 6, at 10226 (discussing 2019 NDAA §2805).

> reestablish installation mission assurance and mission-essential functions.[38]
>
> Accordingly, the installation master plans must now discuss:
>
> (1) The "[r]isks and threats to military installation resilience" both at present and projected into the future, "including from extreme weather events, mean sea-level fluctuation, wildfires, flooding, and other changes in environmental conditions";
>
> (2) "Assets or infrastructure" in the military installation at risk of extreme weather, sea-level rise, wildfires, flooding, and like threats "with a special emphasis on assets or infrastructure critical to the mission of the installation and the mission of members of the armed forces";
>
> (3) "Lessons learned from the impacts of extreme weather events," including changes made to the military installation to attend to such issues;
>
> (4) "Ongoing or planned infrastructure projects . . . to mitigate the impacts of the risks and threats" of extreme weather, sea-level rise, and like risks and threats;
>
> (5) "Community infrastructure and resources located outside the installation (such as medical facilities, transportation systems, and energy infrastructure) . . . necessary to maintain mission capability or that impact the resilience of the military installation" and vulnerable to extreme weather events, sea-level fluctuation, and like threats;
>
> (6) A list of "agreements in effect or planned . . . with public or private entities for the purpose of maintaining or enhancing military installation resilience" and community infrastructure; and
>
> (7) Projections from groups like the Census Bureau and the National Academies of Sciences, among other institutions, "with respect to future risks and threats" to the resilience of any project in the installation master plan "during the 50-year lifespan of the installation."[39]

The NDAA also requires an annual report identifying which installation master plans were updated to include military infrastructure resilience data.[40]

Section 2801(b) of the law provides permanent general authority to DOD to "carry out military construction projects for military installation resilience."[41] The Secretary of Defense is required to notify Congress when the decision is made to carry out such a construction project. A project cannot be begun until after a 14-day period from the date notification is made to the congressional defense committees. The law also requires through 2025 an annual report to Congress on the use of this authority.[42]

Section 2804—Amendment of Unified Facilities Criteria to Promote Military Installation Resilience, Energy Resilience, Energy and Climate Resiliency, and Cyber Resilience. The military uses a planning document called the "Unified Facilities Criteria" (UFC) to establish the requirements for the design, construction, sustainment, and modernization of military construction.[43] The 2020 NDAA takes a major step toward institutionalizing resilience in military construction by requiring DOD, no later than September 1, 2020, to amend the UFC to "promote military installation resilience, energy resilience, energy and climate resiliency, and cyber resilience." The law requires DOD to "take into account historical data, current conditions, and sea level rise *projections,*" and permits DOD to "consult with the heads of other federal departments and agencies with expertise regarding military installation resilience, energy resilience, energy and climate resiliency, and cyber resilience."[44] The reliance on not only current conditions but also projected sea-level rise is significant—as previous UFC standards had looked only at historical data or current conditions and did not incorporate anticipated changes.[45]

The NDAA holds out a proverbial stick to force compliance with these new requirements: under the law, no more than "25 percent of the funds authorized to be appropriated for fiscal year 2020 for Department of Defense planning and design accounts relating to military construction projects may be obligated until the date on which the Secretary of Defense submits" to Congress a certification that the Secretary has initiated the UFC amendment process and intended to complete that process by September 1, 2020.[46]

The law also requires DOD, not later than 30 days after enactment of the 2020 NDAA, to amend the UFC to require that DOD installations "assess the risks from extreme weather and related effects, and develop plans to address such risks." It requires, in the development of such criteria, "land use change projections" and "weather projections" from the appropriate expert federal agencies. The law also directs the Secretary of Defense to provide guidance to project designers and master planners on how to use weather projections and requires the use throughout DOD of the Naval Facilities Engineering Command Climate Change Installation Adaptation and Resilience planning handbook, as amended (or a similar publication of the U.S. Army Corps of Engineers).

The law further requires that the form used by DOD to submit requirements and justifications in support of funding requests for military construction to Congress (DD

38. 10 U.S.C. §101(e)(8) (emphasis added).
39. 2020 NDAA §2801(a).
40. *Id.*
41. *Id.* §2801(b) (amending 10 U.S.C. §2815).
42. *Id.*
43. Whole Building Design Guide, *Unified Facilities Criteria (UFC)*, https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc (last visited Oct. 8, 2020).
44. 2020 NDAA §2804(a) (emphasis added).
45. *See* Sperling, *supra* note 18.
46. 2020 NDAA §2804(b).

Form 1391)[47] be amended with the new UFC after September 1, 2020. And it requires the Secretary to certify to Congress no later than March 1, 2021, the "completion and full incorporation into military construction planning and design" of these criteria.[48] It also requires an annual review beginning in fiscal year 2022 to compare UFC and industry best practices to ensure construction practices for "military installation resilience, energy resilience, energy and climate resiliency, and cyber resilience remain up-to-date."[49]

Section 2805—Modification to Department of Defense Form 1391 Regarding Consideration of Potential Long-Term Adverse Environmental Effects. Further to §2804, §2805 of the 2020 NDAA requires the additional modifications of DD Form 1391. The law requires including in DD Form 1391 a certification that a proposed military construction project will take account of "the potential adverse consequences of long-term changes in environmental conditions." These changes include "increasingly frequent extreme weather events," which could impact the resilience of the installation, "building requirements" of the locality where the proposed construction is to take place, and "industry best practices" for the withstanding of "extreme weather events and other consequences of changes in environmental conditions." It also requires the certification to identify the potential changes in environmental conditions that the Secretary considered and addressed.[50]

Section 2806—Improved Flood Risk Disclosure for Military Construction. The NDAA amends part of the previous year's NDAA, which set new floodplain requirements on military construction. The 2019 NDAA required DOD to disclose whether a proposed construction project fell within a 100-year floodplain. If it did, the Department was required to include a mitigation plan and design the construction to assume certain flood-level elevation.[51] The 2020 NDAA extends that disclosure to include areas that "will be impacted by projected current and future mean sea-level fluctuations over the lifetime of the project."[52] This amendment means that DOD will have to prepare these disclosures for many more construction projects than under the 2019 law.

Section 2808—Technical Corrections and Improvements to Defense Access Road Resilience. The Defense Access Road Program authorizes DOD to provide military construction funds through the U.S. Department of Transportation for transportation-related projects outside military installations.[53] The 2020 NDAA extensively revises the program to make it more relevant to protecting DOD installations from the impacts of flooding, sea-level rise, storm surge, and other climate change impacts, including by investing in off-base road infrastructure.

The law expands the scope of the Defense Access Road Program to not just military installations but "defense industry sites," "air or sea ports that are necessary for or are planned to be used for the deployment or sustainment" of the military, and "sources of raw materials." It extends the scope of the program beyond an earlier limit on "the construction and maintenance of" roads to include the "construction, reconstruction, resurfacing, restoration, rehabilitation, and preservation of, or enhancements to" roads, and to "repairing the damage to those highways caused by . . . weather-related events, *increases in mean high tide levels*, *recurrent flooding*, or natural disasters."[54]

Section 2808 also authorizes funding for projects involving the reconstruction of roads "to ensure the continued effective use of the roads, regardless of current or projected increases in mean tides, recurrent flooding, or other weather-related conditions or natural disasters," and further authorizes "replacing existing highways and highway connections that are shut off from general public use by . . . closures due to *mean sea-level fluctuation and flooding*."[55]

Section 2871—Sense of Congress on Restoration of Tyndall Air Force Base. Hurricane Michael, which made landfall in Florida in October 2018, badly damaged Tyndall Air Force Base, located east of Pensacola.[56] The 2020 NDAA expresses a sense of Congress that the base be restored "to achieve military installation resilience,"[57] and it authorizes more than $1.5 billion for its reconstruction.[58] Sen. Marco Rubio (R-Fla.) took credit for these provisions.[59]

Section 3514—Port Operations, Research, and Technology. The NDAA incorporates a stand-alone bill, the Ports Improvement Act, which amounts to a mini-infrastructure bill for America's ports. Section 3514 establishes a competitive grant program for port and intermodal projects. The law authorizes the appropriation of funds to state and local governments to improve maritime ports, specifically marine terminal equipment used in the loading and unloading of goods, intermodal (containerized) infrastructure like highway or rail infrastructure, and "environmental mitigation measures and operational improvements directly related to enhancing the efficiency of ports and intermodal connections to ports."[60]

Projects eligible for funding must improve the safety, efficiency, or reliability of the movement of goods, must be

47. U.S. Army Corps of Engineers, *DD1391 Processor System*, https://www.hnc.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/482078/dd1391-processor-system/ (last updated Aug. 28, 2020).
48. 2020 NDAA §2804(d).
49. *Id.* §2804(e).
50. *Id.* §2805(a).
51. Jacobson & Ferraro, *supra* note 6, at 10225 (discussing 2019 NDAA §2805).
52. 2020 NDAA §2806(a).
53. 10 U.S.C. §210.
54. 2020 NDAA §2808(1) (amending 10 U.S.C. §210) (emphasis added).
55. *Id.* (amending 10 U.S.C. §210) (emphasis added).
56. Joel Achenbach et al., *Hurricane Michael: Tyndall Air Force Base Was in the Eye of the Storm, and Almost Every Structure Was Damaged*, Wash. Post, Oct. 23, 2018, https://www.washingtonpost.com/national/hurricane-michael-tyndall-air-force-base-was-in-the-eye-of-the-storm-and-almost-every-structure-was-damaged/2018/10/23/26eca0b0-d6cb-11e8-aeb7-ddcad4a0a54e_story.html.
57. 2020 NDAA §2871.
58. *Id.* §2912(a) (the exact authorization was for $1,500,200,000).
59. Press Release, Office of Sen. Marco Rubio, Rubio Applauds Critical Provisions for Florida in FY20 NDAA (Dec. 10, 2019), https://www.rubio.senate.gov/public/index.cfm/2019/12/rubio-applauds-critical-provisions-for-florida-in-fy20-ndaa.
60. 2020 NDAA §3514(b) (amending 46 U.S.C. §50302).

cost-effective, must be able to be completed quickly, and must be eligible for certain matching funds so the federal contribution does not generally exceed 80% of the project costs, among other restrictions.

The Act also encourages expedited environmental approvals. It directs the Secretary of Transportation to "expedite" the review process established under the National Environmental Policy Act[61] "for the improvement of port facilities to improve the efficiency of the transportation system, to increase port security, or to provide greater access to port facilities," and to "coordinate all reviews or requirements with appropriate Federal, State, and local agencies."[62] The provision amends the Coast Guard Authorization Act of 2016 by empowering the Coast Guard to complete remedial actions that may be found to be necessary for the conveyance of land needed for these port improvements and required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.[63]

D. Preparing for a Warming Arctic Ocean

The 2019 NDAA took the noteworthy steps of requiring the Secretary of Defense to submit to Congress by June 1, 2019, an updated Arctic strategy, authorizing the procurement of additional Coast Guard icebreaker ships, and providing more than $15 million to replace a munitions facility for fighter jets near Fairbanks, Alaska, all in light of the warming Arctic Ocean.[64] The 2020 NDAA broadens congressional efforts to help the United States dominate the hotly contested Arctic frontier, in recognition of increased navigational capacity due to the changing climate.

Section 1238—Report on Military Activities of the Russian Federation and the People's Republic of China in the Arctic Region. No later than 180 days after the date of the enactment of the 2020 NDAA, the Secretary of Defense, in consultation with the Secretary of State and the Director of National Intelligence, is to submit to Congress a report on the activities of the Russian Federation and the People's Republic of China in the Arctic region. The report will include a description of the military activities of each country, an assessment of their intentions, a list of responses undertaken by the United States or its allies, and a description of future plans and requirements.[65]

Section 1260E—Chinese Foreign Direct Investment in Countries of the Arctic Region. The law directs the Secretary of Defense to enter into a contract with a federally funded research and development center no later than 45 days after the enactment of the NDAA to conduct an independent study of Chinese foreign direct investment in countries of the Arctic region, with a focus on the effects of such foreign direct investment on U.S. national security and near-peer competition in the Arctic region. The report will be submitted to DOD no later than 720 days after the date of the NDAA's enactment.[66]

Section 1706—Report on the Department of Defense Plan for Mass-Casualty Disaster Response Operations in the Arctic. The NDAA expresses the sense of Congress that, among other things, DOD may be called upon to support the Coast Guard and other agencies of the Department of Homeland Security in responding to any mass-casualty disaster response operations in the Arctic area. Accordingly, the law requires the Secretary of Defense, in coordination with the Secretary of Homeland Security, to submit a report on DOD's plan for assisting mass-casualty disaster response operations in that region. The report is due to Congress no later than 180 days from the NDAA's enactment.[67]

Section 1752—Designation of Department of Defense Strategic Arctic Ports. This section of the 2020 NDAA contains a congressional finding that "the Arctic is a region of strategic importance to the national security interests of the United States and the Department of Defense must better align its presence, force posture, and capabilities to meet the growing array of challenges in the region." It requires the Secretary to submit a report to Congress within 180 days of the enactment of the NDAA evaluating potential sites for "one or more strategic ports in the Arctic," requires that such a port or ports would need to support "at least one of each of type of Navy or Coast Guard vessel, including an Arleigh Burke class destroyer of the Navy, a national security cutter, and a heavy polar ice breaker of the Coast Guard," and lists the "military and civilian operations" in the Arctic that such a port or ports would be required to support.[68]

III. Energy Management and Resilience

DOD is the U.S. government's largest fossil fuel consumer, accounting for between 77% and 80% of all federal government energy consumption since 2001,[69] and the largest electricity consumer in the country.[70] Accordingly, the Department has pursued innovations in energy efficiency and security for years. The 2020 NDAA furthers those goals by, inter alia, encouraging energy cost savings, allowing for the sale of electricity from geothermal resources to benefit the military, establishing a pilot program for energy optimization, and requiring relevant reports and exercises.

Section 317—Use of Operational Energy Cost Savings of Department of Defense. Federal law (10 U.S.C. §2912) allows DOD in certain circumstances to use the money it saves from energy cost savings. The 2019 NDAA revised how that money could be spent.[71] The 2020 NDAA

61. 42 U.S.C. §§4321-4370h, ELR Stat. NEPA §§2-209.
62. *Id.* (referencing 42 U.S.C. §§4321 et seq.).
63. *Id.* (amending Pub. L. No. 114-120, 130 Stat. 74 (2016), and referencing Pub. L. No. 95-510, 92 Stat. 1780 (1978)); 42 U.S.C. §§9601-9675, ELR Stat. CERCLA §§101-405.
64. Jacobson & Ferraro, *supra* note 6, at 10226-27 (discussing 2019 NDAA §§1071, 151, 4601).
65. 2020 NDAA §1238(a), (b).
66. *Id.* §1260E.
67. *Id.* §1706.
68. *Id.* §1752(a), (b).
69. Crawford, *supra* note 2.
70. DOE, Valuation of Energy Security for the United States: Report to Congress 15 (2017), https://www.energy.gov/sites/prod/files/2017/01/f34/Valuation%20of%20Energy%20Security%20for%20the%20United%20States%20%28Full%20Report%29_1.pdf.
71. Jacobson & Ferraro, *supra* note 6, at 10228 (discussing 2019 NDAA §312).

further amends 10 U.S.C. §2912 to allow DOD to apply energy cost savings to a broader range of ventures. These include plans "for the implementation of additional operational energy resilience, efficiencies, mission assurance, energy conservation, or energy security within the department, agency, or instrumentality that realized that savings."[72] The net result of such an amendment is to allow DOD to spend more money on energy savings and energy resilience projects.

Section 318—Sale of Electricity From Alternate Energy and Cogeneration Production Facilities. Some military bases contain geothermal energy resources that produce electrical energy that the base then sells to utility companies. Originally, federal law required that proceeds from those sales be credited not to the base itself where the energy originated, but to the military department overseeing the post. The 2019 NDAA changed the law to allow that, if the alternative energy that the military base uses to produce electric energy is a geothermal energy resource, the military installation can retain 50% of the sale proceeds to support "energy or water security projects directly coordinated with local area energy or groundwater governing authorities."[73]

The 2020 NDAA goes further and provides DOD greater latitude when using revenue from the sale of geothermal electricity. Now, 50% of the sale proceeds may support "military construction projects . . . that benefit the military installation where the geothermal energy resource is located" or "energy or water security projects that . . . benefit the military installation where the geothermal energy resource is located," when the installation's commander determines such projects are necessary and have been directly coordinated with the local authorities.[74]

Section 319—Energy Resilience Programs and Activities. Under federal law, the Secretary of Defense must submit to Congress an annual DOD energy management report related to installations, energy management, energy resilience, and assurance.[75] The 2020 NDAA makes technical corrections to this Annual Energy Management and Resilience Report, requires a report on funding levels for certain energy program offices, and establishes targets for the reduction in DOD's water use. For the latter, the Secretary is directed to install water meters and collect and use water balance data for buildings and facilities; reduce industrial, landscaping, and agricultural water consumption by 2% annually through fiscal year 2030; and install "appropriate sustainable infrastructure features on installations of the Department to help with storm water and waste water management."[76]

Section 337—Pilot Program for Availability of Working-Capital Funds for Increased Combat Capability Through Energy Optimization. Federal law establishes a working capital fund to finance inventories and provide working capital to the Department. The 2020 NDAA allows the Secretary of Defense and the military departments to use the working capital fund to conduct a pilot program for energy optimization initiatives. These initiatives include the research and development of technologies that would improve the efficiency and maintainability of weapons systems or major end-use items. The law also requires the Secretary to submit an annual report to Congress on the use of the working capital fund during the preceding fiscal year. The annual report is to be submitted not later than 60 days after the president's budget is submitted to Congress.[77]

Section 338—Report on Efforts to Reduce High Energy Intensity at Military Installations. The 2020 NDAA requires the Under Secretary of Defense for Acquisition and Sustainment to submit a report to Congress, not later than September 1, 2020, on efforts to achieve cost savings at military installations with "high energy intensity." The phrase "high energy intensity" is a term of art that means costs per specified unit of energy "that is in the highest 20 percent of all military installations for a military department."[78]

Section 2864—Black Start Exercises at Military Installations. A "black start exercise" in the military context means an exercise "in which commercial utility power at the installation is dropped before backup generation assets start."[79] This section of the 2020 NDAA requires the Secretary of Defense, no later than September 30, 2020, to conduct a black start exercise "at three military installations, at least one of which shall be a Joint Base" for the purpose of "identifying any shortcomings in infrastructure, joint operations, joint coordination, and security that would result from a loss of power at the installation." The law requires a report on lessons learned from those and previous "black start" exercises.

Section 3518—Report on Vessels for Emerging Offshore Energy Infrastructure. The 2020 NDAA requires the Comptroller General of the United States to submit a report to Congress on the need for specified vessels "to install, operate, and maintain emerging offshore energy infrastructure, including offshore wind energy." These vessels are not limited to use by DOD.[80]

IV. PFAS and Remediation of Contaminated Military Installations

A. *PFAS*

Congressional concern has grown in leaps and bounds over the potentially harmful effects of once commonly used (including at military bases) fire suppression chemicals known as perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), known collectively as PFAS. The 2018 NDAA provided $7 million for a study of the human

72. 2020 NDAA §317.
73. Jacobson & Ferraro, *supra* note 6, at 10229 (quoting 2019 NDAA §313).
74. 2020 NDAA §318 (amending 10 U.S.C. §2916(b)(3)(B)).
75. 10 U.S.C. §2925(a); *see also* Jacobson & Ferraro, *supra* note 6, at 10227-28 (discussing 2019 NDAA §312, which modified 10 U.S.C. §2925).
76. 2020 NDAA §319(a), (v).
77. *Id.* §337(a)-(e).
78. *Id.* §338(b).
79. *Id.* §2864(c).
80. *Id.* §3518.

health effects of PFOA and PFOS in drinking water and groundwater. It also authorized the Navy and the U.S. Air Force to perform environmental remediation related to PFOA and PFOS, and authorized more than $72 million for groundwater remediation.[81]

The 2019 NDAA expanded on these efforts. It authorized a $10 million health study, directing the Secretary of Defense to submit to Congress an assessment on remediating PFAS contamination in drinking water and on the health implications of PFAS exposure, and authorizing the services to prevent PFAS chemicals from entering water supplies.

The 2020 NDAA takes many significant further steps. Through dozens of sections related to PFAS, the NDAA orders the military to phase out the use of firefighting foam-containing PFAS chemicals, authorizes the use of funds to remediate PFAS contamination, and directs studies and data gathering on PFAS contamination. Collectively, the 2020 NDAA is the most substantial piece of legislation to address PFAS substances of any federal law to date.

Section 316—Modification of Department of Defense Environmental Restoration Authorities to Include Federal Government Facilities Used by National Guard. The NDAA allows the chief of the National Guard Bureau to access Defense Environmental Remediation Account funds for the limited purpose of addressing PFAS exposure and contamination resulting from National Guard activities in and around National Guard bases.[82]

Section 321—Transfer Authority for Funding of Study and Assessment on Health Implications of Per- and Polyfluoroalkyl Substances Contamination in Drinking Water by Agency for Toxic Substances and Disease Registry. The 2018 NDAA authorized $7 million in funding for a study by the Agency for Toxic Substances and Disease Registry (ATSDR) on the health implications of PFAS contamination in drinking water.[83] The 2019 NDAA permitted the Secretary of Defense to transfer no more than $10 million per year during fiscal years 2019 and 2020 to the Secretary of Health and Human Services to pay for that study and assessment.[84] The 2020 NDAA extends the period during which the Secretary of Defense may transfer $10 million per year to fund the ATSDR study through 2021.[85]

Section 322—Replacement of Fluorinated Aqueous Film-Forming Foam With Fluorine-Free Fire-Fighting Agent. PFAS was commonly used as a firefighting foam on military bases. The 2020 NDAA prohibits the use of PFAS-containing firefighting foam after October 1, 2024, and immediately prohibits their use in training. (PFAS compounds were commonly used in fluorinated aqueous film-forming foam (AFFF)). Section 322 requires the Secretary of the Navy to complete a military specification for a fluorine-free firefighting agent by January 2023 and prohibits DOD from procuring firefighting foam containing PFAS after October 2023. It also requires a report to Congress with a detailed plan for implementing the transition from AFFF no later than October 1, 2023.[86]

Section 323—Prohibition of Uncontrolled Release of Fluorinated Aqueous Film-Forming Foam at Military Installations. Section 323 requires the Secretary of Defense to prohibit the uncontrolled release of AFFF at military installations except in cases of emergency response and limited non-emergency use for training or equipment testing, where complete containment, capture, and proper disposal mechanisms are in place to ensure no AFFF is released into the environment.[87]

Section 324—Prohibition on the Use of Fluorinated Aqueous Film-Forming Foam for Training Exercises. This section requires the Secretary of Defense to prohibit the use of fluorinated AFFF for training exercises at military installations.[88]

Section 329—Prohibition on Perfluoroalkyl Substances and Polyfluoroalkyl Substances in Meals Ready-to-Eat Food Packaging. This section requires, no later than October 1, 2021, the Director of the Defense Logistics Agency (DLA) to ensure that any food contact materials used to assemble and package meals ready-to-eat procured by the DLA do not contain any PFAS substances.[89]

Section 330—Disposal of Materials Containing Per- and Polyfluoroalkyl Substances or Aqueous Film-Forming Foam. The NDAA provides DOD with guidance on the disposal of PFAS by incineration and the storage of PFAS-containing materials. Incineration is to be used to achieve the maximum degree of reduction in PFAS emissions. The instruction applies to "legacy AFFF formulations containing PFAS" used by DOD, being discarded by DOD, or being removed from DOD facilities.[90]

Section 331—Agreements to Share Monitoring Data Relating to Perfluoroalkyl and Polyfluoroalkyl Substances and Other Contaminants of Concern. Section 331 requires the Secretary of Defense to seek to enter into agreements with municipalities or municipal drinking water utilities located adjacent to military installations under which both the Secretary and the municipalities and utilities would share monitoring data relating to PFAS and other contaminants present at the military installation. The law also requires the Secretary to maintain a publicly available website to provide information on exposure, testing, cleanup, and treatment.[91]

The sharing of information on PFAS could increase the likelihood of litigation involving those chemicals. "[By]

81. Jacobson et al., *supra* note 6, at 227-28.
82. 2020 NDAA §316 (modifying 10 U.S.C. §2707 and establishing authority to carry out such environmental restoration projects under §2606 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980). *See also* H.R. Conf. Rep. No. 116-333 (2019), https://www.congress.gov/congressional-report/116th-congress/house-report/333/1.
83. 2018 NDAA §316(a)(1), (2)(B)(ii).
84. 2019 NDAA §315(a).
85. 2020 NDAA §321 (amending 2018 NDAA §316(a)(2)(B)(ii), which was in turn amended by 2019 NDAA §315(a)).
86. *Id.* §322.
87. *Id.* §323(a)-(b).
88. *Id.* §324.
89. *Id.* §329.
90. *Id.* §330(a), (b).
91. *Id.* §331(a), (b).

requiring public water systems to monitor for PFAS across the nation and also requiring a sampling program for waterbodies [see §§7331 to 7335], the NDAA expands the amount of PFAS data that will be available and that could potentially serve as the basis for future claims," as analysts in Bloomberg Law have written.[92]

Section 332—Cooperative Agreements With States to Address Contamination by Perfluoroalkyl and Polyfluoroalkyl Substances. The law directs the Secretary of Defense to work "expeditiously," when requested by a governor, to finalize a cooperative agreement for data sharing if there is suspected contamination from PFAS. Beginning on February 1, 2020, if an agreement is not finalized or amended within one year, the Secretary would be required to submit a report to the appropriate committees and members of Congress.

Sections 341-345 (Treatment of contaminated water near military installations). The NDAA contains a subtitle entitled the Prompt and Fast Action to Stop Damages Act of 2019, originally sponsored by the New Mexico congressional delegation.[93] These sections authorize the secretaries of the military departments to use military funds to provide freshwater and/or treatment of contaminated water for agricultural purposes where water is contaminated by PFAS compounds, PFOA, and PFOS, due to activities on a military installation.[94] Additionally, §344 authorizes the Secretary of the Air Force to acquire real property to extend the contiguous geographic footprint of any Air Force base that has shown signs of contamination from PFOA and PFOS due to activities on the base.[95] Finally, the law requires the Secretary of Defense to submit to Congress within 180 days from enactment a remediation plan for cleanup of water contaminated by PFOA and PFOS at and adjacent to military bases. The study must include a budget that "requests funding amounts necessary to address remediation efforts" described in the remediation plan.[96]

The New Mexico delegation introduced the bill in part to address PFAS contamination in groundwater around Air Force bases in New Mexico, including dairy farms that were exposed to PFAS contamination from the Cannon Air Force Base in eastern New Mexico.[97]

Section 707—Provision of Blood Testing for Firefighters of Department of Defense to Determine Exposure to Perfluoroalkyl and Polyfluoroalkyl Substances. Section 707 directs the Secretary of Defense beginning on October 1, 2020, to provide blood testing to determine and document potential exposure to PFAS for each DOD firefighter during his or her annual physical.[98]

Sections 7301-7362 (PFAS Act of 2019). The 2020 NDAA contains a subtitle, the PFAS Act of 2019, a fairly comprehensive set of strategies aimed at a suite of federal agencies to address PFAS chemicals, remediate contamination, and promote public health. It establishes policies related to drinking water, PFAS release disclosures, U.S. Geological Survey (USGS) PFAS detection performance standards, requirements under the Toxic Substances Control Act (TSCA),[99] and other matters related to emerging contaminants.

Notably, Subtitle A of the PFAS Act of 2019 (Drinking Water) requires the Administrator of EPA to include PFAS substances in a list of unregulated contaminants to be monitored under the Safe Drinking Water Act (SDWA).[100] (Initial legislation had called for EPA to set national drinking water standards for any PFAS under the SDWA, but that requirement did not make it into the final bill.[101]) The Administrator is to require most public water systems to monitor for PFAS, and the Administrator is to pay the reasonable cost of such testing and analysis using SDWA funds.[102] The NDAA also amends the SDWA to establish "drinking water state revolving funds" for PFAS substances.[103] The Drinking Water State Revolving Fund program is a federal-state partnership to help ensure safe drinking water that was created by the 1996 Amendments to the SDWA, and it provides financial support to water systems and to state safe water programs.[104]

Subtitle B (PFAS Release Disclosure) requires the addition of PFOA, PFOS, and certain other chemicals to the Toxics Release Inventory as of January 1, 2020. It also requires facilities that manufacture, process, or use PFAS in high quantities to report annually beginning in July 2021 their releases and disposals of PFAS.[105]

Subtitle C (USGS Performance Standard) requires the Director of the USGS to establish a performance standard for detecting PFAS (what it calls "highly fluorinated compounds"),[106] and to use that standard to conduct a "nationwide sampling" for PFAS of various water bodies and soil. A report is due to Congress 120 days after the completion of the sampling.[107] The sampling data are to be used "to inform and enhance assessments of exposure, likely health and environmental impacts, and remediation priorities."[108] The Director of the USGS is to collaborate with appropriate federal and state regulators, universities, research institutions, and other "expert stakeholders" in carrying out these efforts.[109]

92. J. Barton Seitz et al., *Key PFAS Provisions in Defense Bill to Impact Military, Industry Handling*, Bloomberg L., Dec. 23, 2019, https://news.bloomberglaw.com/environment-and-energy/insight-key-pfas-provisions-in-defense-bill-to-impact-military-industry-handling.
93. Press Release, Office of Sen. Tom Udall, NM Delegation's PFAS Legislation Included in National Defense Bill (Dec. 11, 2019), https://www.tomudall.senate.gov/news/press-releases/nm-delegations-pfas-legislation-included-in-national-defense-bill; GovTrack, *H.R. 1567: Prompt and Fast Action to Stop Damages Act of 2019*, https://www.govtrack.us/congress/bills/116/hr1567 (last visited Oct. 8, 2020).
94. 2020 NDAA §343.
95. *Id.* §344.
96. *Id.* §345.
97. Press Release, Office of Sen. Tom Udall, *supra* note 93.
98. 2020 NDAA §707(a).
99. 15 U.S.C. §§2601-2692, ELR Stat. TSCA §§2-412.
100. 42 U.S.C. §§300f to 300j-26, ELR Stat. SDWA §§1401-1465.
101. Seitz et al., *supra* note 92.
102. 2020 NDAA §7311.
103. *Id.* §7312 (amending 42 U.S.C. §300j-12).
104. U.S. EPA, *Drinking Water State Revolving Fund (DWSRF)*, https://www.epa.gov/dwsrf (last updated Apr. 20, 2020).
105. 2020 NDAA §7321.
106. *Id.* §7332.
107. *Id.* §7333.
108. *Id.* §7334(b).
109. *Id.* §7335.

Subtitle D (Emerging Contaminants) directs the EPA Administrator to review the federal efforts of research, development, and response to emerging contaminants, which means "any physical, chemical, biological, or radiological substance or matter in water."[110] It requires EPA to establish the Interagency Working Group on Emerging Contaminants within six months of the NDAA's enactment. Likewise, the Director of the Office of Science and Technology Policy is to establish the National Emerging Contaminant Research Initiative within 180 days of the NDAA becoming law that will work to improve the identification, analysis, monitoring, and treatment methods of contaminants of emerging concern," and develop programs to implement a coordinated cross-agency plan to address research gaps. The EPA Administrator is to report to Congress once every two years until 2029 on the progress of these efforts.[111]

Subtitle E (Toxic Substances Control Act) amends the TSCA to require the EPA Administrator to promulgate a rule requiring any person who has manufactured a PFAS substance since 2011 to submit to the Administrator information on those substances, including their quantity and byproducts.[112] It also requires the Administrator to take final action on a rule proposed in 2015 (Long-Chain Perfluoroalkyl Carboxylate and Perfluoroalkyl Sulfonate Chemical Substances; Significant New Use Rule), which intends to ensure that phased-out perfluorinated chemicals do not re-enter the marketplace without review. Under the proposed rule, manufacturers and importers of these chemicals will have to notify EPA at least 90 days before starting or resuming new uses of these chemicals in any products. Such a notification would allow the Agency to evaluate the new use and, if needed, take action to prohibit or limit the activity.[113]

Subtitle F (Other Matters) directs the EPA Administrator to publish interim guidance on the destruction and disposal of PFAS substances and materials, including AFFF.[114] It also requires the EPA Administrator, through the Assistant Administrator for the Office of Research and Development, to "further examine the effects of [PFAS] substances on human health and environment" and make those findings public. EPA will also develop a process for prioritizing PFAS substances subject to additional research, develop a method to characterize PFAS in water, evaluate approaches for remediation, and develop new tools to communicate with the public about PFAS substances. To fund this effort, the NDAA authorizes $15 million for each fiscal year from 2020 through 2024.[115]

B. Open Burn Pits

The use of open burn pits to dispose of trash in Iraq and Afghanistan has led to widespread claims of illness among veterans and dozens of lawsuits. The 2019 NDAA required DOD to study the feasibility of phasing out the use of burn pits, and directed a major effort to educate veterans about a registry run by the U.S. government to gather information on the long-term health effects of the burn pits.[116] More than 160,000 veterans had enrolled in that registry by December 2019.[117] The Department issued a report in response to the requirement in April 2019, which identified nine open burn pits then in operation—seven in Syria and one each in Afghanistan and Egypt.[118]

The 2020 NDAA takes the next step. The law directs DOD to prepare a plan to phase out the use of the burn pits identified in the April 2019 report. It requires the Department to submit a list of all locations where open-air burn pits have been used. The NDAA also directs DOD to include exposure to open burn pits and toxic airborne chemicals or contaminants as part of servicemembers' periodic health assessments and other physical exams.

Section 333—Plan to Phase Out Use of Burn Pits. Section 333 requires the Secretary of Defense to submit an implementation plan to the congressional defense committees to phase out the use of the burn pits identified in the report published by the Department in April 2019 ("Department of Defense Open Burn Pit Report to Congress").[119]

Section 334—Information Relating to Locations of Burn Pit Use. The NDAA directs the Secretary of Defense to provide to the Secretary of Veterans Affairs and to Congress "a list of all locations where open-air burn pits have been used by the Secretary of Defense, for the purposes of augmenting the research, healthcare delivery, disability compensation, and other activities of the Secretary of Veterans Affairs."[120]

Section 704—Exposure to Open Burn Pits and Toxic Airborne Chemicals or Other Airborne Contaminants as Part of Periodic Health Assessments and Other Physical Examinations. The 2020 NDAA amends federal law to require the Secretary of Defense to ensure that periodic health assessments provided to servicemembers include an evaluation of whether the member has been based or stationed at a location where an open burn pit was used and thus potentially exposed to toxic airborne chemicals or contaminants. The assessment will also rely

110. *Id.* §7341.
111. *Id.* §7342.
112. *Id.* §7351 (amending 15 U.S.C. §2607(a)).
113. *Id.* §7352 (cross-referencing Long-Chain Perfluoroalkyl Carboxylate and Perfluoroalkyl Sulfonate Chemical Substances; Significant New Use Rule, 80 Fed. Reg. 2885 (Jan. 21, 2015)).
114. *Id.* §7361.
115. *Id.* §7362.
116. *See* Jacobson & Ferraro, *supra* note 6, at 10230-31 (discussing 2019 NDAA §§355, 1050).
117. Richard Sisk, *Congress Wants the Pentagon to Make a Plan to Close All Remaining Burn Pits*, Military.com, Dec. 17, 2019, https://www.military.com/daily-news/2019/12/17/congress-wants-pentagon-make-plan-close-all-remaining-burn-pits.html.
118. DOD, Open Burn Pit Report to Congress (2019), https://www.acq.osd.mil/eie/Downloads/Congress/Open%20Burn%20Pit%20Report-2019.pdf.
119. 2020 NDAA §333.
120. *Id.* §334.

on any information recorded in the Airborne Hazards and Open Burn Pit Registry. The NDAA also requires the Secretaries of Defense and Veterans Affairs to share results of such assessments, via a joint memorandum of understanding, and to enroll the servicemember in the named registry unless the member elects not to enroll.[121]

This measure was originally included in a bill called the Occupational and Environmental Transparency (OATH) Act introduced in May 2019, and later incorporated into the NDAA.[122]

C. Other Hazardous Materials

Section 335—Data Quality Review of Radium Testing Conducted at Certain Locations of the Department of the Navy. The 2018 NDAA required DOD to submit a report on the release of radium or radioactive material into the groundwater near the industrial reserve plant in Bethpage, New York.[123] That report—"Addendum to 2017 Annual Report for Radiological Groundwater Impacts at Naval Weapons Industrial Reserve Plant [NWIRP] Bethpage, New York"—found that "the concentration of radium and other radioactive materials identified in groundwater in the vicinity of NWIRP Bethpage is consistent with naturally occurring levels normally found in the regional aquifer" and that there was no evidence discovered of a radium or other radioactive material release that could affect the water quality in the area.[124]

The 2020 NDAA demands a second opinion. Section 335 requires the Secretary of the Navy to provide an independent third-party data quality review of all radium testing completed by contractors of the Department of the Navy at the Naval Weapons Industrial Reserve Plant at Bethpage and Hunter's Point Naval Shipyard in San Francisco.[125] Senate Minority Leader Chuck Schumer (D-N.Y.) specifically called for the provision of such a section in the NDAA.[126]

Section 336—Reimbursement of Environmental Protection Agency for Certain Costs in Connection With the Twin Cities Army Ammunition Plant, Minnesota. The NDAA allows the Secretary of Defense to reimburse EPA in the amount of roughly $900,000 in 2020 and $150,000 from 2021 through 2026, for remedial actions performed at the Twin Cities Army Ammunition Plant,[127] a Superfund site a portion of which was recently delisted from EPA's national priorities list.[128]

V. Environment and Natural Resource Management

The law authorizes more than $5 billion in environmental cleanup at military sites, funds environmental cleanup in Vietnam, and supports public-private partnerships to conserve natural habitats near military bases. It also includes a stand-alone law to crack down on illegal, unreported, and unregulated (IUU) fishing, among other maritime policies, and uses an innovative change in the law to incentivize recycling by the military.

A. Environmental Cleanup

Section 1260H—Authority to Transfer Funds for Bien Hoa Dioxin Cleanup. The 2019 NDAA authorized the Secretary of Defense to transfer up to $15 million in each of fiscal years 2019 through 2027 to the Secretary of State to support a cleanup of dioxin—a byproduct of Agent Orange—at the Bien Hoa Airbase in Vietnam. It was a rare authorization providing for U.S. government funds for environmental cleanup in a foreign nation.[129] The 2020 NDAA provides an additional authorization, allowing the Secretary of Defense to transfer at most $15 million in fiscal year 2020 to the Secretary of State, for use by the United States Agency for International Development, to be used for the Bien Hoa dioxin cleanup in Vietnam. The Secretary of Defense must notify Congress before any such transfer takes place.[130]

Section 3102—Defense Environmental Cleanup. The NDAA authorizes the appropriation of $5.527 billion to DOE for fiscal year 2020 for defense environmental cleanup activities at nuclear sites, slightly more than what the Administration requested. It also authorizes the Secretary of Energy to carry out new plant projects for defense environmental cleanup activities at the Savannah River Site in Aiken, South Carolina, and the Portsmouth Site in Pike County, Ohio.[131] The NDAA further authorizes $4.987 billion in funding for "closure site administration" costs associated with these facilities.[132]

121. *Id.* §704(b), (c) (amending 10 U.S.C. §§1145(a)(5) and 1074f(b)(2)).
122. Press Release, U.S. Senate Committee on Veterans' Affairs, Tester, Blackburn, Klobuchar Leading Effort for Veterans Exposed to Toxic Chemicals (May 24, 2019), https://www.veterans.senate.gov/newsroom/minority-news/tester-blackburn-klobuchar-leading-effort-for-veterans-exposed-to-toxic-chemicals-; *see also* OATH Act, H.R. 2617, 116th Cong. (2019), https://www.congress.gov/bill/116th-congress/house-bill/2617/text.
123. Jacobson et al., *supra* note 6, at 234-35 (discussing 2018 NDAA §318).
124. Jacobson & Ferraro, *supra* note 6, at 10236 (quoting report).
125. 2020 NDAA §335(a)-(c).
126. Press Release, Office of Sen. Charles E. Schumer, Schumer: Growing Concern Across Bethpage Into Navy Contractor Tasked to Investigate & Report on Radium Levels Around Plume Demands Action; Senator Pushes to Include New Amendment in Must-Pass Legislation to Guarantee LI's Groundwater Test Results Get an Independent, Second Look (June 24, 2019), https://www.schumer.senate.gov/newsroom/press-releases/schumer-growing-concern-across-bethpage-into-navy-contractor-tasked-to-investigate-and-report-on-radium-levels-around-plume-demands-action-senator-pushes-to-include-new-amendment-in-must-pass-legislation-to-guarantee-lis-groundwater-test-results-get-an-independent-second-look.
127. 2020 NDAA §336(a)-(c).
128. News Release, U.S. EPA, EPA Removes Portion of the New Brighton/Arden Hills/TCAAP Site in New Brighton, Minnesota, From NPL (Sept. 23, 2019), https://www.epa.gov/newsreleases/epa-removes-portion-new-brighton-arden-hillstcaap-site-new-brighton-minnesota-npl; Minnesota Pollution Control Agency, *New Brighton/Arden Hills Superfund Site (a.k.a. Twin Cities Army Ammunition Plant or TCAAP)*, https://www.pca.state.mn.us/waste/new-brightonarden-hills-superfund-site-aka-twin-cities-army-ammunition-plant-or-tcaap (last visited Oct. 8, 2020).
129. Jacobson & Ferraro, *supra* note 6, at 10231-32 (describing 2019 NDAA §1052).
130. 2020 NDAA §1260H.
131. *Id.* §3102 (authorizing funds stipulated in §4701). The NDAA authorizes about $628 million for the cleanup of the Hanford Site in southeast Washington State, a long-running cleanup program. *See* Jacobson & Ferraro, *supra* note 6, at 10232.
132. 2020 NDAA §4701.

Section 3112—Estimation of Costs of Meeting Defense Environmental Cleanup Milestones Required by Consent Orders. The NDAA requires DOE to include in the budget justification it submits every year a report on the cost of meeting milestones required by a consent order at each defense nuclear facility at which environmental cleanup activities are occurring.[133]

Section 4301—Operation and Maintenance (including REPI funding). DOD's REPI program promotes public-private partnerships in conserving natural habitats near military bases, including National Guard facilities. DOD calls the REPI program a "key tool for combating encroachment"—incompatible land use and habitat loss—"that can limit or restrict military training, testing, and operations."[134] The program is widely respected for its conservation achievements, while it also "preserves and enhances these military missions by helping remove or avoid land-use conflicts near installations, ranges, and their associated facilities, range infrastructure, and airspace, as well as addressing regulatory restrictions that inhibit military activities."[135] The 2019 NDAA expanded the program to allow the public-private partnerships to include agreements that enhance or improve "military installation resilience."[136]

The 2020 NDAA continues Congress' support of the REPI program by authorizing $25 million in greater funding for it; the Administration's FY 2020 request included no such funding.[137] Congress has appropriated over $250 million to REPI in the past three years, including $85 million in FY 2019.[138]

B. *Maritime Management*

Sections 3531-3554 (Programs to combat IUU fishing and increase maritime security). The NDAA incorporates a stand-alone bill, originally called the Maritime Security and Fisheries Enforcement (Maritime SAFE) Act, to combat the security threats of IUU fishing.[139]

"IUU fishing accounts for between 20 percent and 30 percent of global catch and costs legal fishers and governments between $15.5 billion and $36.4 billion per year," according to a report by the nonpartisan Center for Strategic and International Studies.[140] Revenue from IUU fishing "finances criminal networks, which engage in arms dealing, drug running, human trafficking, and terrorism," and the practice harms sustainable fisheries management. "Effectively combating IUU fishing would improve global food security, international stability, and marine ecosystem health."[141]

Sens. Chris Coons (D-Del.) and Roger Wicker (R-Miss.) introduced the Maritime SAFE Act that ended up in the NDAA. It establishes an interagency working group to create a framework for federal agencies to combat IUU fishing.[142] It also authorizes a variety of DOD activities, including engaging U.S. diplomatic missions, providing federal agency assistance to improve law enforcement within priority regions and states, expanding existing mechanisms to combat IUU fishing, improving the transparency and traceability in the seafood supply chain, building capacity for law enforcement and port security, promoting the use of technology to combat IUU fishing, and encouraging better information-sharing among the government. These efforts will only grow in importance as the threat of climate change increases the strains on fisheries, driving more people to IUU practices.[143]

Section 3502—Reauthorization of Maritime Security Program. The Maritime Security Program (MSP), which has existed since 1996, is a

> program of 60 privately owned U.S.-flag commercial vessels with a high degree of military utility which are required to trade in U.S. foreign commerce . . . Each vessel currently receives an annual stipend of $5 million paid in monthly installments in return for making the vessel available to the U.S. Government in national emergencies. U.S. citizenship requirements apply to vessel owners and operators although enrolled vessels can be constructed outside the U.S.[144]

The 2020 NDAA reauthorizes the MSP until 2035. It authorizes a stipend of $5.3 million for fiscal years 2022-2025, $5.8 million for fiscal years 2026-2028, $6.3 million for fiscal years 2029-2031, and $6.8 million for fiscal years 2032-2035 for each of the 60 vessels in the program.[145]

C. *Recycling*

Section 313—Use of Proceeds From Sale of Recyclable Materials. Section 313 of the 2020 NDAA is only one sentence long, but it deserves comment because it incentivizes greater recycling on military facilities. Under federal law, a military installation may sell recyclable materials to

133. *Id.* §3112 (amending Subtitle A of Title XLIV of the Atomic Energy Defense Act, 50 U.S.C. §§2581 et seq.).
134. DOD, *REPI: The Department of Defense's Readiness and Environmental Protection Integration Program—A Guide for State, Local, and Private Partners*, http://repiprimers.org/ (last visited Oct. 8, 2020).
135. *Id.*
136. Jacobson & Ferraro, *supra* note 6, at 10228 (describing 2019 NDAA §312(i) (which modified 10 U.S.C. §2684a(a)(2)(B))).
137. 2020 NDAA §4301.
138. DOD, Readiness and Environmental Protection Integration Program 2020: 14th Annual Report to Congress 2 (2020), https://www.repi.mil/Portals/44/Documents/Reports_to_Congress/REPI2020RTC.pdf (Figure 1).
139. *Id.* §§3531-3554.
140. Whitley Saumweber, *Fishing in the National Defense Authorization: Unpacking Maritime SAFE Act*, Center for Strategic & Int'l Stud., Aug. 14, 2019, https://www.csis.org/analysis/fishing-national-defense-authorization-unpacking-maritime-safe-act.
141. *Id.*
142. Press Release, Office of Sen. Chris Coons, Senate Passes Sens. Coons, Wicker Bipartisan Bill to Combat Illegal, Unreported, and Unregulated Fishing (June 28, 2019), https://www.coons.senate.gov/news/press-releases/senate-passes-sens-coons-wicker-bipartisan-bill-to-combat-illegal-unreported-and-unregulated-fishing.
143. *See generally* William Cheung, *Climate Change Effects on Illegal, Unreported, and Unregulated Fishing*, Nereus Program, Feb. 22, 2016, https://nereusprogram.org/works/climate-change-effects-on-illegal-unreported-and-unregulated-fishing/.
144. Charlie Papavizas, *U.S. Congress to Adopt Defense Act With Significant Maritime Provisions*, Winston & Strawn, Dec. 12, 2019, https://www.winston.com/en/maritime-fedwatch/us-congress-to-adopt-defense-act-with-significant-maritime-provisions.html.
145. 2020 NDAA §3502.

off-base entities under certain circumstances and use the proceeds at the installation itself. After covering the cost of the program, 50% of the proceeds from the recycling program may be used "for projects for pollution abatement, energy conservation, and occupational safety and health activities" and the other 50% may be used for "morale and welfare" activities on the base—the entertainment, dining, and recreation programs on most installations.[146]

Previously, if the recycling program proceeds exceeded $2 million a year, the excess was transferred to the U.S. Department of the Treasury. Under the 2020 NDAA, the cap was raised fivefold, to $10 million.[147] In other words, a military installation now has a multimillion-dollar incentive to conduct a robust recycling program, which could benefit both its safety and health activities but also its soldiers' recreational activities.

VI. Conclusion

The 2020 NDAA contains major pieces of environmental, energy, natural resources, and infrastructure legislation. In aggregate, the law furthers efforts to address the impact of climate change on current and future military installations, promotes energy efficiency across DOD, improves critical port infrastructure, curtails the use—and mitigates the effects of—PFAS and other hazardous materials, and deters illegal fishing, among others.

One notes that many of the environmental and energy resilience programs supported by the NDAA began in previous years. This continuity in defense policymaking has continued despite the fact that Congress has changed hands and that the 2020 NDAA is the product of bipartisan compromise. The success of the NDAA, which was passed on time amid an acrimonious political climate, serves as an example of congressional willingness to address complex issues through innovative legislation. It is a reminder, to quote the late Sen. Daniel Patrick Moynihan (D-N.Y.), that "an elected government can be the instrument of the common purpose of a free people [and] can embrace great causes and do great things."[148]

146. 10 U.S.C. §2577(a), (b), (c).
147. 2020 NDAA §313.
148. Greg Weiner, American Burke 5 (2015) (quoting Senator Moynihan).