



# Fact Sheet

## Federal Resources for Nature-Based Solutions to Climate Change

February 2020

Climate change is fueling more intense weather and compounding the impact of hazards that communities are dealing with already, such as flooding and heat waves. Projects that restore and/or emulate natural systems in order to increase human, ecosystem, and infrastructure resilience to climate impacts—often referred to as nature-based solutions—can reduce damage from natural hazards as well as (or better than) traditional engineered projects, often at less cost.<sup>1</sup> Living shorelines, restored wetlands, reforestation projects, and green (vegetative) roofs are just a few examples of nature-based solutions. They provide multiple environmental, economic, and social benefits, including carbon sequestration, which is a key tool for reducing greenhouse gas emissions.

This fact sheet provides a survey of federal funding and technical assistance available to help state and local governments and agencies, tribes, non-governmental organizations, universities, and individuals implement nature-based solutions for climate resilience.\* Many of these sources of federal support allow communities to develop projects which draw on the multiple, interrelated benefits of nature-based solutions. This fact sheet also identifies the types and attributes of projects the programs support, including:

- **Green infrastructure** — These projects combine gray infrastructure (e.g., a seawall or building) with nature-based solutions to create hybrid systems that improve resilience to climate impacts. Typically, green infrastructure is a built or engineered solution such as a green roof or bioswale. For example, permeable pavers provide durability for driveways and sidewalks while allowing rainwater to filter into the ground below.
- **Natural infrastructure** — These projects restore or use existing natural systems and landscapes (such as forests, floodplains, and wetlands) to increase resilience to climate impacts. Natural infrastructure projects often support habitat restoration as described below.
- **Urban focus** — Nature-based solutions, such as increasing tree canopies, can be incorporated into urban environments to improve resilience to climate impacts such as extreme heat and flooding.
- **Habitat restoration** — Natural habitats preserved or restored to protect biodiversity and improve habitat health can mitigate climate impacts. For example, marshland, mangroves and oyster reefs reduce wave impacts during storms and prevent flooding.
- **Flood prevention** — Nature-based solutions can help mitigate flooding cost-effectively by absorbing and reducing runoff and reducing storm surge along the coast.
- **Water quality** — Nature-based solutions that reduce runoff and increase filtration minimize pollution and improve water quality. In addition, clean water improves the effectiveness of nature-based solutions along riverine and coastal systems, which allows the solutions to better support climate adaptation and mitigation.
- **Pollution abatement** — Several types of pollution, especially air, water, and soil pollution, can be reduced through nature-based solutions. Pollution abatement with nature-based solutions, such as planting and maintaining trees and enhancing soil quality, also serves as a mechanism for climate adaptation (i.e., water storage) and mitigation (i.e., carbon sequestration).
- **Disaster mitigation** — Nature-based solutions aid in disaster mitigation by helping “communities prepare for, cope with, and recover from disasters, including slow-onset events such as droughts.”<sup>2</sup>

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\* This document is not exhaustive, but serves as an outline of some of the major sources of funding currently available.

## Overview of Federal Funding and Technical Assistance Programs

	Green Infrastructure	Natural Infrastructure	Urban Focus	Habitat Restoration	Flood Prevention	Water Quality	Pollution Abatement	Disaster Mitigation
EPA Building Blocks for Sustainable Communities								
EPA Clean Water Act Nonpoint Source Grant (Section 319)								
EPA Clean Water State Revolving Fund (CWSRF)								
EPA Great Lakes Restoration Initiative (GLRI)								
EPA Greening America's Communities Program								
EPA Superfund Redevelopment Initiative (SRI)								
EPA Urban Waters Small Grants Program (UWSG)								
FEMA Flood Mitigation Assistance (FMA) Grant								
FEMA Pre-Disaster Mitigation (PDM) Grant Program								
HUD Community Development Block Grant (CDBG)								
NOAA Community-based Restoration Program								
USDA Urban and Community Forestry (UCF) Program								
USFWS (U.S. Fish & Wildlife Service) Coastal Program								

Table 1: Attributes of Federal Funding and Technical Assistance Sources

## Federal Funding and Technical Assistance Programs

Green Infrastructure

Urban Focus

Flood Prevention

Water Quality

### EPA Building Blocks for Sustainable Communities Program

**Description:** [Building Blocks for Sustainable Communities](#) provides tools and technical assistance for community development projects that contribute to environmental and economic sustainability.<sup>3</sup> The program helps communities improve flood resilience, develop green buildings, protect water quality, and create a green street strategy.<sup>4</sup>

**Eligible to apply:** Local, county, and tribal governments and non-profit organizations that have the support of the local government on whose behalf they are applying.<sup>5</sup>

**Example:** The village of New Paltz, New York, has experienced severe, repeated flooding due to its close proximity to the Wallkill River.<sup>6</sup> In 2015, the Building Blocks for Sustainable Communities program helped New Paltz identify partners; hold community meetings; and document key issues, opportunities, and priority actions to mitigate flooding.<sup>6</sup>

Green  
Infrastructure

## EPA Clean Water Act Nonpoint Source Grants (Section 319)

Natural  
Infrastructure

**Description:** [Section 319](#) of the *Clean Water Act* awards grants for projects that manage nonpoint sources of water pollution.<sup>7</sup> Section 319 grants may only be used for water management activities that do not directly implement a National Pollutant Discharge Elimination System (NPDES) permit.<sup>8</sup> Eligible nature-based solutions include wetland and river-bank restoration and protection, infiltration basins (vegetated depressions used to manage stormwater runoff), green roofs, and landscape swales.<sup>8</sup>

Habitat  
Restoration

Pollution  
Abatement

**Eligible to apply:** States, territories, and tribal agencies.<sup>9</sup>

**Example:** In 2010, a *Clean Water Act* Section 319 grant provided \$910,753 to restore the Watts Branch watershed in Washington, D.C., which had been eroded by excessive stormwater runoff.<sup>10</sup> Restoration efforts involved planting trees, creating floodplain benches to reduce stormwater energy, and re-grading stream banks to control stream flow.<sup>10</sup>

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Green  
Infrastructure

## EPA Clean Water State Revolving Fund (CWSRF)

Natural  
Infrastructure

**Description:** The [CWSRF](#) uses federal and state funds to provide low-interest loans for water infrastructure projects.<sup>11</sup> States contribute a 20-percent match of the federal funding and are responsible for operating and implementing the projects. Nature-based solutions for habitat restoration, pollution management, and other projects are eligible for CWSRF funding.<sup>12</sup>

Habitat  
Restoration

Pollution  
Abatement

**Eligible to apply:** All 50 states, Washington D.C., and U.S. territories.<sup>11</sup>

**Example:** In 2015, Bellingham, Washington restored Squalicum Creek to natural conditions using \$2.5 million in CWSRF funding.<sup>13</sup> The project reconnected the creek to a floodplain, which improved water quality, restored habitat for salmonid species, and expanded recreational opportunities.<sup>13</sup> Squalicum Creek's surrounding wetlands and forests are now able to absorb higher flows, which has reduced flooding in the region.<sup>13</sup>

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Green  
Infrastructure

## EPA Great Lakes Restoration Initiative (GLRI)

Natural  
Infrastructure

**Description:** The [GLRI](#) protects and restores the Great Lakes and the surrounding region by funding the abatement of toxic substances, removal of invasive species, and reduction of nonpoint source pollution harmful to humans and ecosystems.<sup>14</sup> The GLRI prioritizes nature-based solutions, including wetland restoration and green stormwater infrastructure.

Habitat  
Restoration

**Eligible to apply:** Agencies, states, tribes, local governments, universities, nongovernmental organizations.<sup>15</sup>

**Example:** In 2019, the GLRI funded a \$475,000 project to reconnect Ohio's Cuyahoga River to 105 acres of river floodplains.<sup>16</sup> This nature-based solution will help the Cuyahoga River area be more resilient by reducing erosion during flood events and enhancing habitats.<sup>16</sup> Healthy floodplains slow floodwaters, improve water quality, protect people and property from floods, and recharge groundwater.<sup>17</sup>

Green  
Infrastructure

## EPA Greening America’s Communities Program

Urban Focus

**Description:** The [Greening America’s Communities](#) program supports green infrastructure and sustainable design projects in cities and towns across the United States.<sup>18</sup> The EPA provides design and technical assistance to help implement these projects.<sup>18</sup>

Flood  
Prevention

**Eligible to apply:** Cities and towns.<sup>18</sup>

**Example:** In 2016, Greening America’s Communities assisted Oklahoma City, Oklahoma, to address flooding and city connectivity issues.<sup>19</sup> The program redesigned five parts of the city to incorporate pervious pavers, bioretention planters, riparian restoration, and bioswales to reduce stormwater runoff.<sup>19</sup>

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Natural  
Infrastructure

## EPA Superfund Redevelopment Initiative (SRI)

Habitat  
Restoration

**Description:** The [SRI](#) supports the cleanup and redevelopment of sites that are contaminated with hazardous waste by providing “site owners, businesses, local governments and lenders with the tools and information resources they need to make reuse happen.”<sup>20, 21</sup> Creating resilience to climate change is incorporated into Superfund site cleanup.<sup>22</sup> Many Superfund sites can be redeveloped to include nature-based solutions that prevent flooding, erosion, and transport of contaminants.<sup>23</sup>

Flood  
Prevention

**Eligible to apply:** Government agencies, site owners, responsible parties, community members, developers, non-profit agencies, and other partners.<sup>24</sup>

Pollution  
Abatement

**Example:** In 2011, SRI funding helped restore Bayou Verdine in Lake Charles, Louisiana, which had been contaminated by industrial activities.<sup>25</sup> The project removed contaminated soils, reinforced parts of the Bayou's shorelines to prevent flooding, and created a drainage bioswale.

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Green  
Infrastructure

## EPA Urban Waters Small Grants Program (UWSG)

Urban Focus

**Description:** [Urban Waters Small Grants](#), up to \$60,000, fund individual projects that improve urban water quality. The projects must also provide additional community benefits (i.e., economic, recreational, and employment opportunities), engage underserved communities, and foster partnerships.<sup>26</sup> Water quality issues can often be addressed with green infrastructure to manage runoff and reduce flooding.

Habitat  
Restoration

**Eligible to apply:** States, local governments, Indian Tribes, public and private universities and colleges, public or private nonprofit institutions/organizations, intertribal consortia, and interstate agencies.<sup>27</sup>

Flood  
Prevention

**Example:** Denver, Colorado, received a \$60,000 UWSG in 2015 to restore 80 acres of land around Heron Lake.<sup>26</sup> This project reduced runoff pollution and improved habitat.

Water  
Quality

Pollution  
Abatement

Flood  
Prevention

## FEMA Flood Mitigation Assistance (FMA) Grant Program

Disaster  
Mitigation

**Description:** The [FMA](#) grant program provides resources “to reduce or eliminate the risk of repetitive flood damage to buildings and structures insurable under the National Flood Insurance Program (NFIP).”<sup>28</sup> FMA funds projects that reduce flood damage and make communities more resilient to future flooding.<sup>29</sup> Stormwater management, wetland restoration or creation, and floodplain and stream restoration projects are eligible for FMA funding.<sup>28</sup>

**Eligible to apply:** States, territories, and federally-recognized tribes can submit applications on behalf of homeowners, businesses, and private nonprofits.<sup>29</sup>

**Example:** Sebastian County, Arkansas, secured a \$25,000 FMA grant in 2015 to update their Flood Hazard Mitigation Plan.<sup>30</sup> The Plan identified several nature-based solutions such as planting trees around buildings and parking lots and installing green roofs to mitigate extreme heat.<sup>31</sup>

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Green  
Infrastructure

## FEMA Pre-Disaster Mitigation (PDM) Grant Program

Habitat  
Restoration

Flood  
Prevention

Disaster  
Mitigation

**Description:** [FEMA PDM](#) grants allow participants to develop resilient infrastructure to reduce the impacts of natural disasters, such as floods, earthquakes, droughts, and wildfires, before a disaster occurs.<sup>32,33</sup> The current PDM program will be replaced by FEMA's new Building Resilient Infrastructure and Communities (BRIC) program, which is currently under development.<sup>34</sup> The goal of both iterations of the funding source is to direct more resources for projects, including nature-based solutions, that prevent or reduce disaster impacts. Increased investment in pre-disaster mitigation should also reduce the cost of federal assistance for disaster response and recovery.

**Eligible to apply:** States, tribes, territories, and local communities.

**Example:** Chelsea, Massachusetts, received a PDM grant to update its 2014 Hazard Mitigation Plan.<sup>35</sup> The Hazard Mitigation Plan identifies several high priority hazard mitigation strategies, such as implementing Green Infrastructure Best Management Practices and updating floodplain zoning and conservation regulations, to reduce flooding.

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Green  
Infrastructure

## HUD Community Development Block Grant (CDBG) Program

Natural  
Infrastructure

Urban  
Focus

Flood  
Prevention

**Description:** The U.S. Department of Housing and Urban Development (HUD) administers the [CDBG](#) program to support a range of community needs, including affordable housing, neighborhood stabilization, and economic development.<sup>36</sup> Green infrastructure for stormwater management and urban tree planting are eligible for CDBG funding because they create jobs, mitigate flooding in communities, and increase economic activities.<sup>37</sup>

**Eligible to apply:** States, cities, and counties.<sup>38</sup>

**Example:** In 2014, Detroit, Michigan, received an \$8.9 million CDBG to demolish abandoned properties, plant trees on 200 vacant lots, and install a bio-retention basin.<sup>37</sup> This project improved stormwater management and the vibrancy of the neighborhood.<sup>37</sup>

Natural  
Infrastructure

## NOAA Community-based Restoration Program

Habitat  
Restoration

**Description:** The [Community-based Restoration Program](#) funds coastal and marine habitat restoration projects, such as restoring coral and oyster reefs, removing dams, and rebuilding coastal wetlands.<sup>39, 40</sup> The program provides grants and technical assistance for “restoration projects that use a habitat-based approach to rebuild productive and sustainable fisheries, contribute to the recovery and conservation of protected resources, promote healthy ecosystems, and yield community and economic benefits.”<sup>40</sup>

**Eligible to apply:** Institutions of higher education, non-profit organizations, for-profit organizations, foreign public entities and foreign organizations, state, territory, local, and Indian tribal governments.<sup>41</sup>

**Example:** The Save the Redwoods coalition was awarded \$603,375 through the Community-based Restoration Program in 2017 to restore 18 acres of wetland habitat in Humboldt County, California.<sup>39</sup> The project restored floodplain access and increased resilience to severe weather.<sup>39</sup>

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Natural  
Infrastructure

## USDA Urban and Community Forestry (UCF) Program

Urban Focus

Habitat  
Restoration

Flood  
Prevention

**Description:** The [UCF](#) Program works with states to provide technical, financial, research and educational services so communities can conserve, restore, and enhance their urban forests.<sup>42</sup> The program funds projects that improve human health, educate communities on urban forestry, and increase the resilience of urban forests. Urban forests help manage stormwater runoff and reduce building energy use by moderating temperatures (which also reduces the public health impact of heat waves), and mitigate climate change by sequestering carbon.<sup>43</sup>

**Eligible to apply:** Local governments, non-profit organizations, community groups, educational institutions, and tribal governments.<sup>42</sup>

**Example:** In 2019, the UCF Program provided \$590,622 to Oregon’s Department of Forestry (ODF) to improve their urban forests.<sup>44</sup> ODF used the funds for public education on invasive species and to provide technical assistance to 35 citizens and 25 schools, colleges, and public entities.<sup>44</sup>

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Natural  
Infrastructure

## U.S. Fish & Wildlife Service Coastal Program

Habitat  
Restoration

**Description:** The [Coastal Program](#) provides technical and financial assistance for conservation and habitat restoration projects on private or public land that improve the resilience of coastal ecosystems.<sup>45</sup> On average, the Coastal Program leverages \$8 from partners for every \$1 spent by the Coastal Program itself.<sup>45</sup>

**Eligible to apply:** Federal agencies, state agencies, local and tribal governments, businesses, conservation organizations, and private landowners in the 24 priority coastal areas along the Atlantic and Pacific Oceans, Gulf of Mexico, Great Lakes, and the Caribbean.<sup>46, 47</sup>

**Example:** Shipping channels, oil and gas facilities, and road construction have all taken a toll on the Salt Bayou in Texas.<sup>48</sup> In 2013, the Salt Bayou Watershed Restoration Plan, created with help from the Coastal Program, restored the marsh and protected it from future damage.<sup>49</sup>

## Conclusion

Communities across the country can access federal assistance for projects that use nature-based solutions to reduce pollution and increase resilience to severe weather and other climate change impacts. Many of these solutions provide social, economic, and environmental co-benefits that can further strengthen communities. Congress should continue to support resilience programs to ensure our country is better adapted and more prepared for the effects of climate change.

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This fact sheet is available electronically (with hyperlinks and endnotes) at [www.eesi.org/papers](http://www.eesi.org/papers).

*The Environmental and Energy Study Institute (EESI) is a non-profit organization founded in 1984 by a bipartisan Congressional caucus dedicated to finding innovative environmental and energy solutions. EESI works to protect the climate and ensure a healthy, secure, and sustainable future for America through policymaker education, coalition building, and policy development in the areas of energy efficiency, renewable energy, agriculture, forestry, transportation, buildings, and urban planning.*

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