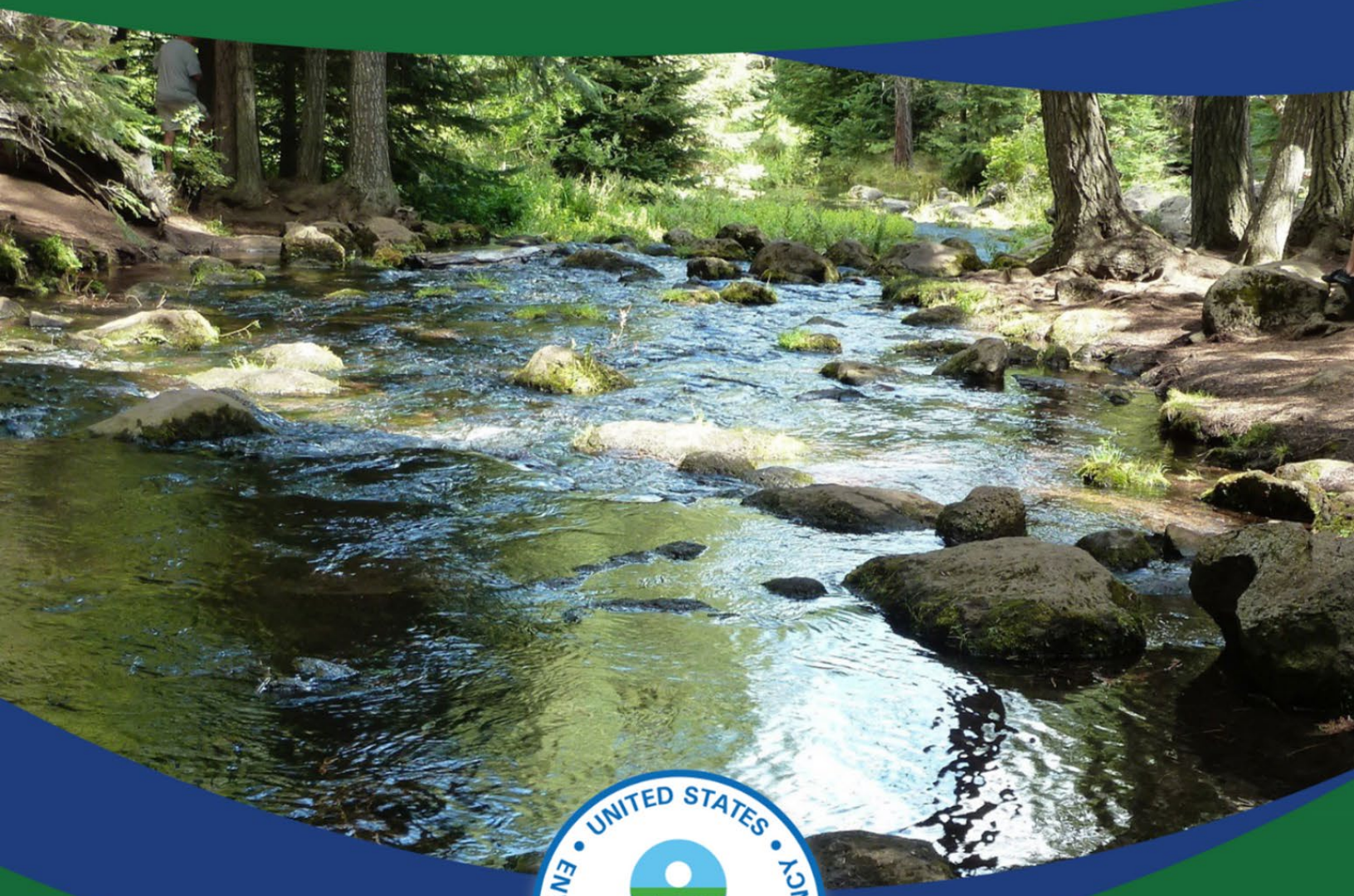
U.S. ENVIRONMENTAL PROTECTION AGENCY



REGION 10

# Climate Change Adaptation Implementation Plan

2024 ADDENDUM

Prepared by the Region 10 Climate Adaptation Implementation Team

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# CLIMATE ADAPTATION PLAN LEADERSHIP

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# PRIORITY ACTIONS

U.S. EPA Region 10 remains committed to taking action to support the Agency's Climate Adaptation Plan. This effort began in Fiscal Year 2022, and EPA Region 10 has extended, expanded, and added to the initial Priority Actions. The actions identified below include Division-specific priorities that support the advancement of climate adaptation-related actions across the Region. The Region is committed to supporting these activities, which are critical to building a region that is more resilient to climate challenges.

## A. Continuing Priority Actions

| ***UTILIZE CLEAN WATER ACT/SAFE DRINKING WATER ACT STATE REVOLVING FUND (SRF) PROGRAMS TO FUND RESILIENCY ACTIVITIES*** | |
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| *Fiscal Year Start-Complete* | 2022-2026 |
| *Responsible Division* | Water Division (WD) |
| *Priority Action Description* | This priority action supports EPA's long-term commitment to modernize all its financial assistance programs to encourage climate-resilient investments; most immediately, with a focus on investments made with funds from the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA) through the Clean Water and Drinking Water State Revolving Fund programs. |
| *Performance metric* | Total green project reserve dollars for all Region 10 states and Tribes |
| *Associated Vulnerability* | Flooding, drought, sea level rise, storm surge, permafrost thaw, shoreline erosion |
| *Co-benefits* | Green Infrastructure, resilient and healthy coastline ecosystems, consistent sources for safe drinking water, reduced flooding. |
| *Resource requirements* | Additional resources required |
| *Notes* | This work will support federally recognized Tribal governments, as well as non-native communities. |

| ***INCORPORATE CLIMATE ADAPTATION INTO PERFORMANCE PARTNERSHIP AGREEMENT (PPA) PROCESS TO ENHANCE STATE PARTNERSHIPS*** | |
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| *Fiscal Year Start-Complete* | 2022-2026 |
| *Responsible Division* | Office of the Regional Administrator (ORA)/Operations Offices |
| *Priority Action Description* | Include language within Performance Partnership Agreements to acknowledge the importance of and implement climate adaptation efforts within ongoing national and state programs. Examples may include updated language related to strategic goals or mutual priorities that address climate adaptation; new or revised laws, regulations, initiatives or policies that address climate adaptation; funding programs; or program activities that target climate adaptation, resiliency or mitigation. |

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| *Performance metric* | Short-term: successfully signed agreements which have enhanced language around climate adaptation relevant to our state partners; Long-term: active climate adaptation engagement with our state partners through annual meetings and shared science priorities which advance environmental justice. |
| *Associated Vulnerability* | Specific vulnerabilities vary by location |
| *Co-benefits* | Co-benefits vary by state, public health, environmental justice |
| *Resource requirements* | No additional resources required |
| *Notes* | This priority action supports EPA's long-term commitment to modernize all its financial assistance programs to encourage climate-resilient investments; most immediately, with a focus on investments made with funds from the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA). |

## *FACILITATE AND CO-LEAD NATIONAL CLIMATE WORKGROUP AS SUB-LEAD FOR EPA REGIONAL AIR AND RADIATION DIVISIONS TO ADVANCE AIR SCIENCE, POLICY, AND UNDERSTANDING OF IMPLICATIONS FOR CLIMATE ADAPTATION*

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| *Fiscal Year Start-Complete* | 2022-2025 |
| *Responsible Division* | Air and Radiation Division (ARD) |
| *Priority Action Description* | R10 led the Office of Air and Radiation Climate sub-lead for FY22-23, providing coordination amongst the 10 Regional Offices on scoping regional climate work and providing input on climate policy and programs during that period. As Climate sub-lead for FY24-25, Region 10 will continue to provide a coordination role for the regions with a focus audience of Climate Air Program Managers and regional Climate Leads and near-term focus on climate training for incoming staff and emerging climate issues with regional involvement. |
| *Performance metric* | Variable based on workgroup needs |
| *Associated Vulnerability* | Specific vulnerabilities vary by project |
| *Co-benefits* | Clean air, public health, education |
| *Resource requirements* | No additional resources required |

## *CONDUCT CLIMATE CHANGE VULNERABILITY ANALYSES FOR REGION 10 SUPERFUND NATIONAL PRIORITIES LIST SITES*

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| *Fiscal Year Start-Complete* | 2022-2025 |
| *Responsible Division* | Superfund and Emergency Management Division (SEMD) |
| *Priority Action Description* | Remedies at Superfund sites are already designed to maintain protectiveness under modern climate conditions. A climate vulnerability assessment specifically evaluates the resilience of the remedy's protectiveness to future climate impacts. The assessment documents and identifies resilience capabilities of existing or planned remedies and may recommend adaptation |

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| | measures to improve resilience of the remedy's protectiveness. The assessments will also provide documentation of remedy resilience to inform the community or other site stakeholders. |
| *Performance metric* | Completion of initial climate vulnerability screening for all Region 10 National Priorities List sites. Selections made for climate vulnerability assessment. Completion of 4 climate vulnerability assessments through 2025. |
| *Associated Vulnerability* | Specific vulnerabilities vary by project |
| *Co-benefits* | Co-benefits vary by project |
| *Resource requirements* | Resource needs and funding sources for assessment of non-National Priorities List sites will be determined after the initial climate vulnerability screening is completed. Any actions to be conducted based on the outcome of the Climate Vulnerability Assessments will be determined on a site-specific basis. |
| *Notes* | This analysis will initially include screening all Region 10 National Priority List sites to rank site remedies from the most to least vulnerable to the effects of climate change for nine unique climate risks. Superfund Emergency Management Division will propose four sites in the high-risk category to undergo a Climate Vulnerability Assessment to be conducted with Office of Land and Emergency Management/Office of Superfund Remediation and Technology Innovation for national consistency. |

| ***TARGET INSPECTIONS OF FACILITIES IN CLIMATE VULNERABLE AREAS AND SEEK OPPORTUNITIES TO INCLUDE LANGUAGE, WHERE APPROPRIATE, IN ENFORCEMENT REMEDIES THAT HELP ADDRESS CLIMATE CHANGE IMPACTS*** | |
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| *Fiscal Year Start-Complete* | 2023-2026 |
| *Responsible Division* | Enforcement and Compliance Assurance Division (ECAD) |
| *Priority Action Description* | Region 10 ECAD will focus inspection targeting in communities disproportionately affected by pollution and a changing climate, or 'climate vulnerable' areas. ECAD will develop an inspection targeting process for identifying climate vulnerable areas by leveraging climate change data available through EPA's EJSCREEN tool that focus on Significant Regional Vulnerabilities important to R10 (e.g. Flooding Risk, Wildfire Risk). ECAD will apply the new inspection targeting process to its already targeted FY23 inspections to develop a baseline that characterizes ECAD's starting point of how many inspections are conducted in Climate Vulnerable areas prior to training ECAD staff on this vulnerability assessment tool and implementation in future fiscal years. ECAD will explore models of injunctive relief and supplemental environmental projects (SEPs) that promote climate adaptation, resiliency, and mitigation and look to incorporate these considerations in the enforcement process when addressing noncompliance in Climate Vulnerable areas. |
| *Performance metric* | Number of ECAD targeting staff receiving training on use of vulnerability assessment tools, number of inspections conducted in climate vulnerable areas. Develop a strategy for seeking opportunities to help address climate change impacts through enforcement remedies. Number of enforcements remedies that promote climate adaptation, resiliency, or mitigation. |
| *Associated Vulnerability* | Specific vulnerabilities vary by location |
| *Co-benefits* | Co-benefits vary by state, public health, environmental justice |
| *Resource requirements* | Additional resources required |

## *REVIEW AND UPDATE VULNERABILITY ASSESSMENTS AND REQUIRE MODIFICATIONS TO REMEDY ACTIONS FOR LEGACY CLEANUP RESOURCE CONSERVATION RECOVERY ACT (RCRA)/TOXIC SUBSTANCE CONTROL ACT (TSCA) LONG TERM STEWARDSHIP (LTS) SITES*

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| *Fiscal Year Start-Complete* | 2023-2026 |
| *Responsible Division* | Land, Chemicals, and Redevelopment Division (LCARD) |
| *Priority Action Description* | Resource Conservation and Recovery Act (RCRA) and Toxic Substance Control Act (TSCA) permitted or cleanup sites that will continue to operate for the long-term (generally >30 years) with institutional or engineering controls need to demonstrate that those controls are effective for the long-term. Long-term effectiveness is a cornerstone criteria of remedy decisions and applies to ECs/ICs at permitted sites. The R10 RCRA and PCB Section (RCAPPS) will screen existing and new sites using the R10 climate mapping screening tool developed for Priority Action 8 and require modifications to the site to adapt to climate change where necessary. These activities will be done in 2 phases. The focus under this Priority Action is on new decisions, rather than evaluating existing permits or remedies that are not up for review or renewal.<br>Phase 1: Screening will identify climate threats to the site, where the data is available. Screening will be documented and if a threat is identified, the threat will be shared with the facility and EPA will ask the facility to evaluate whether the site remedy or planned or existing ECs/ICs are vulnerable to the climate threat.<br>Phase 2: If the site remedy planned or existing ECs/ICs are vulnerable to a climate threat, EPA will ask the facility to review the climate adaptation BMPs relevant to the threat found in the ITRC Sustainable, Resilient Remediation Guidance. EPA will ask the facility to evaluate which BMPs are applicable, and implementable at the site, then develop a plan for implementing them. If a climate threat is not identified at the site, the screening will be documented in the site records and no further action is necessary until the next permit renewal or remedy review time period. |
| *Performance metric* | Percentage of current and LTS cleanups mapped for climate vulnerabilities; number of existing cleanups where a vulnerability assessment is requested; percentage of new PCB cleanups with LTS with a baseline vulnerability assessment that have submitted an updated vulnerability assessments; percentage of new PCB cleanups with LTS where the updated vulnerability assessments identified a modified to the remedy decision is necessary; percentage of new PCB cleanups with LTS where the remedy is modified based on the updated vulnerability assessments. |
| *Associated Vulnerability* | Specific vulnerabilities vary by location |
| *Co-benefits* | Reduced releases of toxic waste into local communities |
| *Resource requirements* | R10 Climate Screening Map; ITRC SRR Guidance |
| *Notes* | Action will occur in two phases, with Phase 2 modifications dependent on Phase 1 vulnerability assessment recommendations |

## *COORDINATION WITH THE NORTHWEST CLIMATE ADAPTATION SCIENCE CENTER AND REGION 10 DIVISIONS ON SCIENCE NEEDS AND AVAILABLE CLIMATE CHANGE RESOURCES*

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| *Fiscal Year Start-Complete* | 2022-2026 |
| *Responsible Division* | Laboratory Services and Applied Science Division (LSASD) |

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| *Priority Action Description* | Region 10 LSASD will participate, as the EPA lead, on the Northwest Climate Adaptation Science Center (CASC) Advisory Committee. The Advisory Committee consists of state, federal, and tribal environmental professionals who guide NW CASC-funded science initiatives. NW-CASC is one of nine climate adaptation science centers in the US, and it funds research efforts at eight universities within Washington, Oregon, Idaho, and Montana including the Northwest Indian College. LSASD's participation will consist of two simultaneous efforts: 1) reviewing existing resources (e.g., publications, reports, story maps) and communicating relevant resources to R10 programs and 2) providing input on NW-CASC's future research efforts. |
| *Performance metric* | Review existing NW-CASC resources and develop an internal resource to share these with regional staff; Participate in NW-CASC AC meetings and influence the direction of their science agenda to include EPA's adaptation challenges and program considerations. |
| *Associated Vulnerability* | Specific vulnerabilities vary by location |
| *Co-benefits* | Climate vulnerable areas in Region 10 also tend to be areas housing communities with environmental justice concerns. |
| *Resource requirements* | No additional resources required |
| *Notes* | The R10 Climate Change SharePoint Site, created in response to the first performance metric, is helping to increase the climate literacy of LSASD staff and staff within other R10 Divisions. No BIL/IRA funds were used for this action. |

## *DEPLOY MOBILE LABORATORY TO INVESTIGATE ACTIVE FIRE IMPACTS ON HUMAN HEALTH*

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| *Fiscal Year Start-Complete* | 2022-2025 |
| *Responsible Division* | Laboratory Services and Applied Science Division |
| *Priority Action Description* | Climate change is driving increased wildfire frequency, intensity, and duration in the western United States. Wildfires are encroaching into the wildland-urban interface, devastating communities, and causing elevated concentrations of particulate matter (e.g., $PM_{2.5}$) and hazardous air pollutants in Region 10. Prescribed fires can mitigate impacts from uncontrolled fires, but the air quality and health impacts from prescribed and wildfires must be quantified to inform development of smoke management plans and State Implementation Plans. LSASD, in collaboration with ARD and ORD-PESD (Corvallis), will characterize smoke from one or more fires. |
| *Performance metric* | Deploy mobile air monitoring laboratory. This new resource will allow EPA to comprehensively characterize the chemical composition of fine aerosols at high time resolution, determine the sources of the aerosols and apportion their relative contributions to the total. Additionally, the lab will have instruments to measure numerous atmospheric gases, allowing us to understand the atmospheric chemistry underlying aerosol formation in the targeted airshed. |
| *Associated Vulnerability* | Wildfire |
| *Co-benefits* | Clean air, human health, environmental justice |
| *Resource requirements* | Additional resources required |
| *Notes* | This effort will strive to integrate Indigenous knowledge into the project. Some of the instruments in the mobile air monitoring laboratory were purchased using IRA funding. |

| WORK WITH REGION 10 STATES AND TRIBES TO DEVELOP AND IMPLEMENT SMOKE MANAGEMENT PLANS AND WORK WITH TRIBES ON ADAPTATION TO WILDFIRE AND SMOKE | |
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| *Fiscal Year Start-Complete* | 2022-2026 |
| *Responsible Division* | Air and Radiation Division |
| *Priority Action Description* | R10's annual Smoke Management in the NW Conferences are unique in bringing together air quality, land management, public health, and community entities to actively work together at on issues at the nexus of these disciplines – how to balance forest and public health while mitigating impacts of catastrophic wildfire. Past meetings have included interdisciplinary panels of representatives from land management and air agencies sharing how smoke management plans and decisions work in practice, peer learning, and group brainstorming on how to better align agencies' goals and protocols to protect ecosystems and communities. |
| *Performance metric* | Host and facilitate a meeting each year with at least 75 participants. The outcome of this action is education and skills to create individual smoke management plans by each partner participant. |
| *Associated Vulnerability* | Wildfire |
| *Co-benefits* | Clean air, public health and air quality |
| *Resource requirements* | No additional resources needed within EPA. However, funding may be needed to support travel and participation in this training event. |
| *Notes* | Translate learnings into streamlined strategies for community preparedness and response and smoke management. State agencies will have a clear set of actions to adapt to increased impacts of smoke on public health and air quality. |

| EPA SUPPORT TO REGION 10 TRIBES TAKING ACTION TO ADDRESS CLIMATE CHANGE | |
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| *Fiscal Year Start-Complete* | 2022-2024 |
| *Responsible Division* | Office of the Regional Administrator |
| *Priority Action Description* | Region 10 General Assistance Program (GAP) team will continue to negotiate with Tribes in Region 10 to include climate adaptation actions in GAP workplans and as part of EPA Tribal Environmental Plans (ETEPs) renewals. Region 10 will utilize national guidance on which actions should be considered climate adaptation work within the context of ETEPs and GAP workplans to ensure national consistency. Actions may include developing a draft climate adaptation plan; identifying potential impacts of climate change; assessing vulnerability; planning efforts; applying for additional funding (e.g., applying for funding from others such as FEMA); adaptation measures such as green infrastructure; restoration projects providing flood benefits; improved coordination with other key organizations (e.g., a state or federal partner); estimate financial impacts. Once actions are reviewed and counted by the GAP team as part of a grantee performance review, Region 10 will focus future outreach to the remaining Tribes who have no such actions as part of their workplan. In FY 23 and beyond, Region 10 GAP training team will target geographic areas where those Tribes remain, to make them aware of climate work possible under GAP. Region 10 will coordinate with EPA's American Indian Environmental Office as EPA develops best practices and its approach for how to consider Indigenous Knowledge in research, policies, and decision-making including EPA's climate adaptation program activities. |
| *Performance metric* | 200 of the 271 (50 per fiscal year) Tribes within Region 10 will incorporate climate adaptation actions into their ETEPs and GAP grant workplans. |

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| *Associated Vulnerability* | Specific vulnerabilities vary by Tribe and location |
| *Co-benefits* | Co-benefits vary by Tribal partner |
| *Resource requirements* | No additional resources required. |
| *Notes* | This priority action supports EPA's long-term commitment to modernize all its financial assistance programs to encourage climate-resilient investments; most immediately, with a focus on investments made with funds from the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA). |

| ***REPRESENT AND LEAD EPA'S ENGAGEMENT IN THE BERING SEA TASK FORCE ON CLIMATE RESILIENCY*** | |
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| *Fiscal Year Start-Complete* | 2022-2026 |
| *Responsible Division* | Office of the Regional Administrator |
| *Priority Action Description* | Executive Order 13754 directs a coordinating framework through the establishment of the federal Bering Task Force and the Bering Intergovernmental Tribal Advisory Council (TAC), which offers an opportunity to build long-term and working (day-to-day) relationships that can lead to mutual trust and understanding from multiple perspectives (science, Indigenous Knowledge, agency, and policy). The Northern Bering Sea region has been experiencing severe impacts from climate change due to ocean warming and severe loss of seasonal sea ice and will benefit from a coordinated federal approach to ensure the resilience of the region. The Task Force is working now to identify cross-agency objectives and deliverables to be consistent with the following, "It shall be the policy of the United States to enhance the resilience of the northern Bering Sea region by conserving the region's ecosystem, including those natural resources that provide important cultural and subsistence value and services to the people of the region. For the purpose of carrying out the specific directives provided herein, this order delineates an area hereafter referred to as the "Northern Bering Sea Climate Resilience Area," in which the exercise of relevant authorities shall be coordinated among all executive departments and agencies (agencies). All agencies charged with regulating, overseeing, or conducting activities in the Northern Bering Sea Climate Resilience Area shall do so with attention to the rights, needs, and knowledge of Alaska Native Tribes; the delicate and unique ecosystem; the protection of marine mammals, fish, seabirds, and other wildlife; and with appropriate coordination with the State of Alaska." |
| *Performance metric* | Short term metrics include identifying EPA equities and areas of collaboration within the Bering Sea Task Force. Intermediate metrics include meeting with the Bering Sea Tribal Advisory Council to understand the Tribal priorities of the Region and then determining appropriate roles for EPA engagement. Long term metrics include active climate adaptation principles integrated into EPA's work in the Bering Sea Climate Resilience Area. The Task Force intends this to be a model of other climate resilience areas. Region 10 will coordinate with EPA's American Indian Environmental Office as EPA develops best practices and its approach for how to consider Indigenous Knowledge in research, policies, and decision-making including EPA's climate adaptation program activities. |
| *Associated Vulnerability* | Ocean warming, loss of sea ice, shoreline erosion |
| *Co-benefits* | Public health, environmental justice |

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| *Resource requirements* | No additional FTE required. Funding will be needed to support implementation of scientific priorities associated with EPA's work in the Bering Sea which further climate resilience. Travel resources will be required to support community engagement, when appropriate. |
| *Notes* | Region 10 will work across programs to highlight information and resources available to support TAC priorities, including emergency response and preparedness, community climate adaptation and infrastructure, and other environmental issues affecting public health, social, and cultural health of the region and provide for enhanced communication and coordination of EPA activities in this region with the TAC. |

## *LEVERAGE DIESEL EMISSION REDUCTION ACT (DERA) FUNDING AND GREENHOUSE GAS (GHG) MITIGATION*

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| *Fiscal Year Start-Complete* | 2023-2026 |
| *Responsible Division* | Air and Radiation Division |
| *Priority Action Description* | The Diesel Emissions Reduction Act (DERA) program, in a limited number of scenarios, funds fixed infrastructure. This action is to attempt to make sure those are used in a well-intentioned manner to take into account a changing climate. |
| *Performance metric* | Total percentage of grants receiving funds for infrastructure are reminded by the EPA Grants Project Officer about planning for climate adaptation and are pointed toward EPA climate adaptation resources. |
| *Associated Vulnerability* | Specific vulnerabilities vary by location |
| *Co-benefits* | Clean air, public health, energy, and cost savings |
| *Resource requirements* | No additional resources required |
| *Notes* | Projects utilizing federal dollars for building fixed infrastructure are encouraged take into consideration anticipated changes and challenges due to a changing climate before citing and constructing facilities. Projects replacing old diesel engines with newer/cleaner devices produce emissions reductions of criteria pollutants, as well as certain toxics and GHGs. Newer engines are more efficient, leading to decrease in energy used and an overall emissions benefit.<br>This priority action supports EPA's long-term commitment to modernize all its financial assistance programs to encourage climate-resilient investments; most immediately, with a focus on investments made with funds from the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA). |

## *IDENTIFY THE IMPACT OF INCREASED HYDROLOGICAL VARIABILITY (FLOODING/DROUGHTS) ON CONTAMINANT MOBILITY AND TOXICITY AT CONTAMINATED SITES*

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| *Fiscal Year Start-Complete* | 2023-2025 |
| *Responsible Division* | Laboratory Services and Applied Science Division |
| *Priority Action Description* | The wetting and drying of soils/sediments can have a large impact on the mobility and toxicity of several heavy metals and metalloids. The changes in mobility and toxicity are a function of oxidization/reduction (redox) conditions, with oxidizing conditions occurring during dryer periods and reducing conditions during wet conditions. Future climate projections show that the Pacific Northwest region may see increased periods of both flooding and drought as well as |

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| | sea level rise and storm surges in coastal areas. As a result, metal contaminants present in sediments that are typically submerged may become oxidized during drought conditions, and soils that are typically dry may become flooded and develop reducing conditions. LSASD will conduct a study focused on climate change impacts on metal mobility and toxicity through collection and/or analysis of new and existing data. |
| *Performance metric* | Peer-reviewed scientific article |
| *Associated Vulnerability* | Flooding, drought, sea level rise, storm surge |
| *Co-benefits* | Clean water, human health. In addition to the benefits for Region 10, a process-based understanding of the impacts of climate change on metal/metalloid mobility could be extrapolated and/or emulated at a national-scale. |
| *Resource requirements* | No additional resources required to complete one study. Additional resources needed to complete multiple studies, especially if the studies are conducted concurrently. |
| *Notes* | Work is being done on Black Butte Mine Superfund Site, a BIL funded site. |

| ***ENHANCEMENTS TO REGION 10 FACILITIES IN THE COASTAL ZONE*** | |
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| *Fiscal Year Start-Complete* | 2022-2026 |
| *Responsible Division* | Laboratory Services and Applied Science Division |
| *Priority Action Description* | LSASD, in collaboration with MSD, will lead EPA efforts to implement resilience measures at the R10 Manchester Laboratory. The laboratory must be continuously functional to support R10's programmatic work, which includes storing samples at specified temperatures and processing high priority samples at an expedited pace. In addition, the laboratory is an important piece of the region's Continuity of Operations plan and has responsibility for addressing remediation needs during national incidents involving chemical agents. LSASD and MSD will implement improvements at the laboratory that will improve the infrastructure's resilience to heavy precipitation and power loss. These improvements are replacing the warehouse roof, adding photovoltaic (PV) panels at the laboratory, and installing electric vehicle (EV) charging stations. |
| *Performance metric* | Installation of an EV charging stations and PV panels at Region 10 Manchester Laboratory |
| *Associated Vulnerability* | Heavy precipitation events and wildfires resulting in more frequent power outages that impede the lab's ability to carry out its mission. |

| ***REDUCE RESOURCE CONSUMPTION BY REVIEWING FACILITIES IN REGION 10 THROUGH LENS OF EXECUTIVE ORDER 14057 "CATALYZING CLEAN ENERGY INDUSTRIES AND JOBS THROUGH FEDERAL SUSTAINABILITY" TO IDENTIFY OPPORTUNITIES TO SAVE ENERGY AND RESOURCES*** | |
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| *Fiscal Year Start-Complete* | 2022- 2026 |
| *Responsible Division* | Mission Support Division (MSD) |
| *Priority Action Description* | EPA Region 10 will implement sustainability practices throughout R10 operations. |
| *Performance metric* | Varies |

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| *Associated Vulnerability* | Specific vulnerabilities vary by location |
| *Co-benefits* | Energy and cost savings, reduced carbon footprint |
| *Resource requirements* | Electric vehicle charging infrastructure is dependent upon funding from HQ. |
| *Notes* | Anticipate additional actions driven in part by new national Senior Sustainability Workgroup tasked with implementing Executive Order 14057. |

## B. New Priority Actions

| ***DEVELOP AND IMPLEMENT HIGH RESOLUTION STORM MODELING FOR PUGET SOUND COMMUNITIES WITH SHORELINES TO INFORM VULNERABILITY ASSESSMENTS, ADAPTATION PLANNING, AND COASTAL RESILIENCY INVESTMENTS*** | |
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| *Fiscal Year Start-Complete* | 2024-2030 |
| *Responsible Division* | Water Division |
| *Priority Action Description* | EPA Region 10 WD will develop and implement the USGS Coastal Storm Modeling System (CoSMoS) for all Puget Sound shorelines. A Puget Sound CoSMoS will integrate tide, storm surge, wave run-up and stream flow into a seamless numerical model to simulate coastal flood events under scenarios of future sea-level rise and storm intensity. The resulting map products will allow users to visualize future coastal flooding at meter-scale resolution, predicting flood extent, depth, duration, wave height and other flood characteristics. Implementation will include providing substantial outreach, technical assistance, and engagement activities to maximize the usage of PS-CoSMoS for community coastal vulnerability assessments and coastal resilience planning. In the long-term, the coastal vulnerability and sea-level-rise adaptation planning efforts, supported by this work, will result in improved multi-benefit outcomes, including reduced coastal flooding risks, more robust coastal ecosystem restoration projects, and more robust infrastructure projects and investments. |
| *Performance metrics* | 1. Percentage of total shoreline miles of the Puget Sound Basin with completed high resolution modeling for standard CoSMoS model outputs.<br>2. Number of outreaches, technical assistance, and engagement activities conducted.<br>3. Number of organizations using PS-CoSMoS to provide input to their coastal vulnerability/sea-level-rise (or related) assessments and planning efforts. Examples of organizations include counties/local-governments or -agencies, Tribes/Tribal agencies, state agencies, relevant local planning groups or collaboratives, and other similar relevant groups. |
| *Associated Vulnerability* | Increasing vulnerability of property, infrastructure, and restoration investments to sea level rise, storm surge, coastal flooding, increasing storm intensity, concurrent winter storm and river flooding, coastal erosion, and related coastal hazards; groundwater vulnerabilities including superfund and agricultural sites. |
| *Co-benefits* | Support for integrated planning including Green Infrastructure, Nature-Based Solutions, resilient and healthy coastline ecosystems, integrated transportation and waterfront resilient infrastructure planning and investments. |
| *Resource requirements* | Primary resources for modeling, outreach and technical assistance provided through BIL funding, which can be leveraged for additional resources from other federal agencies. |
| *Notes* | This priority action will support federally recognized Tribal governments, communities with environmental justice concerns, and all coastal local jurisdictions throughout the Puget Sound basin. The associated project includes novel model development, technical assistance, and substantial external engagement as fundamental project objectives. |

| *FOCUS COMPLIANCE MONITORING AND ENFORCEMENT ON CLIMATE CHANGE MITIGATION* | |
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| *Fiscal Year Start-Complete* | 2024-2026 |
| *Responsible Division* | Enforcement and Compliance Assurance Division |
| *Priority Action Description* | EPA's FY 2022-2026 Strategic Plan prioritizes actions to tackle the climate crisis, including through enforcement of Clean Air Act (CAA) requirements that apply to the oil and gas and landfill sectors. The oil and gas and landfill sectors are a significant source of methane emissions and methane has a Global Warming Potential (GWP) 28 times greater than carbon dioxide (CO2). Oil and gas systems and landfills are the second and third largest sources of methane emissions in the U.S., responsible for 46% of U.S. emissions in 2021. Region 10 ECAD will focus compliance monitoring and enforcement resources on identifying and addressing noncompliance in these industry sectors. |
| *Performance metric* | Number of compliance monitoring activities (e.g. inspections, information requests) conducted at oil and gas facilities and landfill facilities. |
| *Associated Vulnerability* | Specific vulnerabilities vary by location |
| *Co-benefits* | Clean air, public health |
| *Resource requirements* | Additional resources required |
| *Notes* | ECAD will explore models of injunctive relief and supplemental environmental projects (SEPs) that promote climate adaptation, resiliency, and mitigation that could be incorporated into enforcement actions in the future. |

## C. Completed Priority Actions

| *CREATE RESOURCE CONSERVATION RECOVERY ACT (RCRA)/TOXIC SUBSTANCE CONTROL ACT (TSCA) FACILITY MAPS WITH CURRENT AND PREDICTIVE INFORMATION ON CLIMATE CHANGE HAZARDS* | |
|---|---|
| *Fiscal Year Start-Complete* | 2022 |
| *Responsible Division* | Land, Chemicals, and Redevelopment Division |
| *Priority Action Description* | The R10 RCRA and PCB Program with the R10 GIS team, created a screening tool to identify climate threats relevant to RCRA and TSCA facilities. The screening tool is an interactive GIS map with all available and useable climate data available for Project Managers to view. The map also has boundary layers for all RCRA sites, and dots representing all PCB sites with Long-Term Stewardship. Project managers can use the screening tool to identify which climate threats are relevant to their site. The tool also includes a detailed catalogue of all the data sources reviewed, the data gaps that exist, and a description of the limitations and quality of any existing data set. |

| | |
|---|---|
| *Performance metric* | One climate threat map as deliverable |
| *Associated Vulnerability* | Specific vulnerabilities vary by location |
| *Co-benefits* | Co-benefits vary by facility |
| *Resource requirements* | No additional resources required |
| *Notes* | Complete |

| ***ESTABLISH LONG TERM SITES FOR MONITORING CLIMATE IMPACTS IN REGION 10 (STREAMFLOW AND TEMPERATURE)*** | |
|---|---|
| *Fiscal Year Start-Complete* | 2022-2023 |
| *Responsible Division* | Laboratory Services and Applied Science Division |
| *Priority Action Description* | Long-term records of streamflow and stream temperature can be used to identify climate change impacts such as changes in the amount and timing of spring snowpack melt, the number and timing of heavy precipitation events, the number and length of droughts, and changes in seasonal water temperature. Changes in streamflow and/or stream temperature can influence the development of harmful algal blooms (HABs), the suitability of a stream for aquatic life, and the availability of water for drinking, agriculture, energy production, and other uses. The ability to discern a climate "signal" within freshwater aquatic monitoring programs is critical for being able to draw conclusions from these data and for establishing long-term trends. We will evaluate climate signals by generating benchmark data via establishing and sampling "sentinel sites". |
| *Performance metric* | Summary |
| *Associated Vulnerability* | Streamflow and temperature |
| *Co-benefits* | Clean water |
| *Resource requirements* | Resource needs dependent on the nature and extent of outreach and communication with regional partners |
| *Notes* | Complete |

## D. Inactive Priority Actions

| ***CONDUCT SYSTEMATIC REVIEW AND INCLUDE CLIMATE CHANGE ADAPTATION CRITERIA IN GRANT PROGRAM REQUIREMENTS*** | |
|---|---|
| *Notes* | Region 10 has made the decision to categorize this Priority Action as inactive. Region 10 will continue to keep this Priority Action in our list and offer the option for Divisions to set measures during plan updates in future years. Region 10 has several other Priority Actions that address climate adaptation through financial mechanisms, including those supported by BIL and IRA funds. |

# TRAINING PLAN FOR ENHANCING STAFF KNOWLEDGE ABOUT CLIMATE ADAPTATION

Consistent with the *EPA 2022-2026 Strategic Plan*, Goal 1: Tackle the Climate Crisis, Region 10 will provide training to enhance staff, management, and partner awareness and knowledge of relevant climate change data and information, impacts, and climate adaptation approaches. Training for staff will focus on raising awareness, enhancing knowledge, and increasing understanding on how climate change is likely to impact EPA's mission and programmatic work. Furthermore, our regional training will highlight existing and future tools that can be used to enhance our work as it relates to climate change adaptation.

In accordance with *EPA's Strategic Plan*, EPA program offices will develop, update, and expand existing climate adaptation training modules to prioritize two primary goals: 1) to increase awareness about the importance of climate adaptation and encourage all EPA staff and partners to consider the changing climate in the normal course of business; and 2) to introduce specific methods and tools for integrating climate adaptation into decision-making processes.

Region 10 continues to support the development of climate training materials nationally and facilitate the distribution and customization of materials regionally. Region 10's training work occurs primarily through two efforts: (1) OAR Climate Sub-lead (part of OAR's Lead Region system), and (2) Region 10's Climate SharePoint site development. In addition to these two efforts, staff from across Region 10 regularly participate in NPM and other national trainings.

Region 10 currently leads the OAR Climate Sub-lead and has been key to the development of climate training materials developed for national use. The first application of climate change content was incorporated into training modules (climate change 101, planning, and mitigation) for the Climate Pollution Reduction Grants program under the Inflation Reduction Act. The materials continue to be shared with regions through the Climate Sub-lead and we anticipate that they will be re-purposed and customized regionally.

Looking forward, the OAR Climate Sub-lead will continue to convene national and regional partners to identify existing climate trainings and resources and climate training gaps. This effort aims to create a consolidated, directive resource for new staff working on climate change as they begin their work. Longer term, the effort hopes to identify additional training needs and determine how to develop and deliver training material.

Region 10 has supplemented national training efforts by creating a regional Climate Sharepoint site that links to training applicable to regional staff. Topics highlighted on the SharePoint site include climate impacts to Tribes and communities with environmental justice concerns, focused information on specific climate threats (e.g., permafrost thaw in the Arctic), and links to existing ORD science tools that can be used by EPA staff to better understand, teach, or adapt to climate change in their daily work on behalf of the people we serve. The R10 Climate SharePoint site is also the central location for information about the R10 Climate Speaker Series and R10 Climate Discussion Forum to facilitate regional peer-to-peer

learning opportunities. The R10 Climate SharePoint has generated interest regionally and nationally, and there is interest in replicating this framework on a broader scale.

Several national program offices are scheduled to release a climate adaptation training modules for EPA staff. Measurement and evaluation of progress facilitates a better understanding of Region 10 staff climate adaptation knowledge, awareness, and engagement. Region 10 will continue to encourage Region 10 staff to participate in training modules created through this process for FY 22-26. The training schedule and targets will be updated as training modules become available by program offices. Region 10 expects that each program office will track and report attendance. Taking Climate Adaptation 101 will be a mandatory training for all new hires and added into Individual Development Plans (IDP).

Whenever possible, Region 10 will distribute training opportunities and materials to external partners to maximize the benefit and enhance collaborative learning.