DROUGHT RESILIENCE INTERAGENCY WORKING GROUP 1-YEAR SUMMARY REPORT

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THE WHITE HOUSE
WASHINGTON

White House Drought Resilience Interagency Working Group

Department of Agriculture

Department of the Interior

Army Corps of Engineers

Department of Defense

Department of Health and Human Services

Department of Homeland Security

Environmental Protection Agency

National Oceanic and Atmospheric Administration

Acronyms and Abbreviations

AMWG	Adaptive Management Work Group
ARS	Agricultural Research Service
BIL	Bipartisan Infrastructure Law
BOR	Bureau of Reclamation
CBRFC	Colorado Basin River Forecast Center
CDC	Centers for Disease Control and Prevention
CIG	Conservation Innovation Grants
CVP	Central Valley Project
DOD	Department of Defense
DOI	Department of the Interior
DWR	California Department of Water Resources
ERDC	Engineering Research and Development Center
EPA	Environmental Protection Agency
ERS	Economic Research Service
FY	Fiscal Year
IWG	Drought Interagency Work Group
NIDIS	National Integrated Drought Information System
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
OCE	Office of the Chief Economist
SRF	Clean Water and Drinking Water State Revolving Funds
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USIBWC	U.S. Section of the International Boundary and Water Commission

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The Drought Resilience Interagency Working Group

In April 2021, the Biden-Harris Administration launched the Drought Resilience Interagency Working Group (IWG) to address worsening drought conditions in the United States and to support farmers, ranchers, Tribes, and communities impacted by ongoing water shortages. The Drought Resilience IWG reports to the National Climate Task Force and is one of five White House Resilience IWGs tackling climate impacts. The Drought Resilience IWG is co-chaired by the Secretaries of the Department of the Interior (DOI) and the Department of Agriculture (USDA) and includes a total of 14 Departments across the Federal government. The Drought Resilience IWG builds upon existing resources and coordinates across the Federal family to provide targeted, near-term relief and support to drought-stricken communities. The IWG is also working to improve communities' long-term resilience to drought, given that drought cycles are increasing in severity due to climate change.

The Bipartisan Infrastructure Law (BIL) provides historic investments of over $13 billion to help communities meet water supply demands through a wide variety of infrastructure improvements; this funding follows-through on the President's promise to build climate resilience, and focus on water efficiency, storage, conveyance, recycling, and watershed protection. In particular, the Drought Resilience IWG members are working to effectively deploy the $8.3 billion in BIL funds for the Department of Interior's Bureau of Reclamation's to increase water resilience and the $918 million BIL investment in USDA's Natural Resources Conservation Service for watershed infrastructure projects. The IWG also has coordinated drought relief activities in hard-hit watersheds including the Klamath, Rio Grande, California's Central Valley and the Colorado River Basin, and has launched a Federal-State task force with the Western Governors' Association to advance drought and soil monitoring systems.

This report provides a summary of the work that is proceeding under the auspices of the Drought Resilience IWG.

Bipartisan Infrastructure Law Implementation

With the signing of the BIL by President Biden, Federal agencies have historic opportunities to provide critical funding to address water and drought challenges. This legislation invests in new infrastructure for Western water and power while enhancing the resilience of existing infrastructure to withstand changing climate conditions.

The Drought Resilience IWG will provide a forum for interagency coordination to effectively deploy approximately $13 billion in BIL water-related investments. These key investments will improve Federal stewardship of our critical resources and significantly increase efforts to support our partners, stakeholders, Tribal nations, and communities. These activities will complement a variety of key water conservation and supply programs in DOI, USDA, as well as other agencies that are highlighted later in this report.

Below is a brief summary of ongoing and planned, BIL-supported Drought Resilience IWG activities including, most prominently, DOI and USDA drought relief expenditures; work at the Environmental Protection Agency (EPA), the Department of Commerce's National Oceanic Atmospheric Administration (NOAA), and the Army Corps of Engineers (USACE) is also highlighted. Work of these agencies is drought-adjacent and funded by BIL.

Department of the Interior

With nearly $12.4 billion in overall BIL funding, DOI will make significant steps in helping communities tackle the climate crisis by investing in critical water resource projects including infrastructure, conservation, and environmental restoration.

Specifically, DOI's Bureau of Reclamation (BOR) will allocate $8.3 billion of BIL funding over the next five years to continue building drought resilience throughout the West. Work has begun through the allocation of $1.6 billion in Fiscal Year (FY) 2022 to various programs and projects. Recent announcements include $420 million for Rural Water Projects across the country and over $240 million for aging infrastructure. Additional projects that will move forward in FY 2022 include water storage and conveyance projects; extraordinary maintenance for aging infrastructure and transferred works; rural water projects; water recycling and reuse projects; desalination projects; Safety of Dams projects; WaterSMART grants; watershed management projects; aquatic ecosystem restoration and protection; multi-benefit watershed health improvements; endangered species and recovery programs; and implementation of the Colorado River Drought Contingency Plan.

For a more detailed breakdown of spending please see the FY 2022 BOR spend plan.

Department of Agriculture

The BIL provides USDA with $918 million for investment in watershed infrastructure projects with local communities through the Natural Resources Conservation Service (NRCS). These investments will help improve the resilience of watersheds in the face of severe drought and other climate-infused disasters through three programs: the Watershed Rehabilitation Program, the Watershed and Flood Prevention Program, and the Emergency Watershed Program. NRCS has already announced nearly $600 million worth of BIL-funded projects under these authorities.

Additional Bipartisan Infrastructure Law Investments

The Environmental Protection Agency's (EPA) Clean Water and Drinking Water State Revolving Funds (SRFs) will provide $43 billion in BIL funds to support critical investments in drinking water and clean water infrastructure. These funds will be allocated by formula to all 50 States, Washington, DC, and the territories. While these funds afford States, communities, and water systems broad flexibilities and eligible uses, many States experiencing drought can leverage these funds to incorporate solutions to build long-term resiliency. EPA released a BIL SRF Implementation Memorandum in March 2021 and encourages states to utilize the significant increase in SRF funding for infrastructure projects that make water systems more

resilient to all threats, including drought and other water scarcity issues. EPA is working with State co-regulators, Tribal partners, and other water sector stakeholders on next steps toward implementation.

The Department of Commerce's National Oceanic Atmospheric Administration (NOAA) received $80 million in BIL funding, which will advance environmental modeling crucial to understanding critical Earth systems. The funding will be used for weather and climate model development primarily to improve drought, flood, and wildfire prediction, detection, and forecasting. Funds will support high performance computing systems; associated storage devices; advanced data communications hardware and software engineering services; security; and necessary data center space.

The BIL provided the U.S. Army Corps of Engineers (USACE) with $17.1 billion to invest in a broad array of water resource infrastructure and actions that support: (1) the efficient and sustainable use of the Nation's waterways; (2) multi-benefit flood protection systems; (3) aquatic ecosystem restoration projects; and (4) local infrastructure development to address specific needs of local communities and Tribal nations. A number of the projects and studies being funded through the BIL will advance drought resilience actions in several impacted regions including California's Bay-Delta, the Colorado River basin, and the Missouri River basin. Specifically, USACE is funding new studies, monitoring, and data systems; environmental infrastructure; and aquatic ecosystem restoration projects in the West that will help ease reliance on traditional surface water supplies and/or help address environmental demands that compete with other water uses in a number of watersheds. Already, USACE has announced more than $17 billion in Army Corps investments for over 800 projects across 55 States and territories through BIL and other appropriations.

Fiscal Year 2021 to Present Accomplishments

Since its formation, the Drought Resilience IWG has worked to strengthen drought communication to the public, increase information and data sharing efforts among agencies, and improve coordination of drought response. The accomplishments highlighted below, include the formalization of new drought-related interagency Memorandums of Agreement (MOAs), coordinated water supply operations, financial assistance, drought roundtables, listening sessions, and webinars.

DOI, USDA, and NOAA are actively participating in listening sessions, drought webinars, and roundtables to disseminate important drought information, discuss the current crisis, and explain the investments in water and drought resilience that will be made possible by the BIL. These efforts are occurring with a wide array of State government representatives, Tribal and community leaders, and local water managers. In addition, members of the Drought Resilience IWG held roundtables in New Mexico, Arizona, Colorado and Nevada and hosted numerous webinars, listening sessions, and forums about water supply, outlooks, forecasting, resiliency, and other drought information. Assembled stakeholders, decision makers, and drought experts have used these forums and listening sessions to exchange information about Federal drought response and explored innovative ideas to build long-term drought resiliency. Input from listening sessions and stakeholder engagement will guide U.S. Geological Survey (USGS) Drought Program planning and inform other national drought programs.

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In January 2022, Secretaries Haaland and Vilsack and National Climate Advisor Gina McCarthy met with the Western Governors' Association to sign a Memorandum of Understanding (MOU) to launch a task force of Federal, State and territorial representatives to ensure a collaborative response to land, water, and wildlife challenges facing Western landscapes and populations. The newly launched task force will help strengthen effective coordination and implementation of priority conservation programs and policies, including those affecting wildlife corridors, wildfire and drought resilience and response, and forest and rangeland restoration. The task force will be essential to strengthening collaboration, especially for the implementation of historic investments in wildlife restoration, drought mitigation, and wildland fire resilience.

The IWG also collaborated with the Western States Water Council's Western States Federal Agency Support Team (WestFAST) for the April 5-7, 2022, Interstate Council on Water Policy, and National Supply Alliance conference and roundtable in Washington, DC. The IWG and the National Drought Resilience Partnership member agencies - such as the EPA, DOI, USACE, NOAA, USDA, the Department of Energy (DOE), and the National Aeronautics and Space Administration (NASA) - took part in open roundtable discussions and presented on a wide array of drought topics including, but not limited to, federal water resources data programs, integrated water resources planning, and forecasting.

In addition to increased communications, IWG agencies continue to effectively engage in basin-specific coordination for operational and drought activities including the Klamath, Columbia, Colorado, and Rio Grande Basins and the Central Valley of California:

Klamath Basin—In FY 2021, DOI's Bureau of Reclamation and USDA coordinated drought relief efforts in some of the most drought-stricken areas in the West. This included a collective investment of $38 million ($23 million from BOR and $15 million from USDA) in the Klamath Basin to help farmers and Tribes. Approximately $35 million of the total investment targeted financial assistance to agricultural producers to help manage the severe drought and to maintain the agricultural infrastructure in the Klamath Basin. In November 2021, BOR announced the availability of $2.7 million for the 2021-2024 Klamath River Coho Restoration Grant Program. The National Fish and Wildlife Foundation is administering the program, which will fund activities and projects to enhance survival and recovery of natural populations of coho salmon in the Klamath River Basin. The BOR-funded grant program will be coordinated with NOAA Fisheries and California Department of Fish and Wildlife.

Columbia Basin—The Columbia River System is comprised of 14 federal dam and reservoir projects in Idaho, Montana, Oregon, and Washington. In July 2021, BOR, NOAA Fisheries, Bonneville Power Administration, and USACE reached an agreement regarding operations of the Columbia River System, which is home to endangered salmon populations. The White House Council on Environmental Quality (CEQ) is leading an interagency effort to develop a basin-wide solution to preserve and enhance salmon populations. This includes significant coordination from DOI, USACE, U.S. Fish and Wildlife Service (USFWS), and NOAA Fisheries. More information can be found at the Columbia-Pacific Northwest Region Programs & Activities page.

Colorado River Basin— In the Upper Colorado Basin, the Secretary of the Interior is under mandate to regulate the river and operate its dam to meet multiple statutory goals. The Adaptive Management Work Group (AMWG) – a Federal Advisory Committee – was

formed to facilitate a balance of these varied interests and to cultivate a consensus on methods to protect downstream resources. The AMWG consists of representatives from DOI; the Bureau of Indian Affairs (BIA); the National Park Service (NPS); USFWS; the Hualapai Tribe; the Hopi Tribe; the Navajo Nation; the Pueblo of Zuni; the Southern Paiute Consortium; the San Juan Southern Paiute Tribe; the seven Basin States (Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming); Arizona Game and Fish Department; the Western Area Power Administration; the environmental sector; the recreational industry; Federal power purchase contractors.

Rio Grande Basin—DOI continues to work with the U.S. Section of the International Boundary and Water Commission (USIBWC) to implement requirements of the Convention of 1906 between the United States and Mexico for "Equitable Distribution of the Waters of the Rio Grande" to the Acequia Madre heading in Ciudad Juarez, Chihuahua, Mexico. DOI-BOR holds regular calls with USIBWC staff to discuss Federal water operations topics for the Rio Grande Project. As DOI and USIBWC continue to work together to resolve the challenges of the Rio Grande Project, BOR is sharing costs on efforts including water-related data collection, monitoring, and reporting within the Rio Grande Project area. BOR's El Paso Field Office Team collocated with USIBWC in February 2022.

Central Valley Project of California—The Central Valley Project (CVP) is a complex, multi-purpose network of dams, reservoirs, canals, hydroelectric powerplants, and other facilities to serve agricultural, municipal and industrial needs, as well as fish and wildlife. Through the historic drought conditions of 2020-2021 that have continued into 2022, BOR has and will continue to coordinate closely with USFWS, NOAA, the California Department of Water Resources (DWR), the California Department of Fish and Wildlife, and the State Water Board to effectively manage the limited water supply within the CVP. This has included a joint BOR/DWR submission of Temporary Urgency Change Petitions to conserve water storage, as well as a number of coordination activities such as monthly drought plan reporting and weekly Water Operations Management Team meetings. Federal and State partners also collaborated to promote new and innovative system operations. These have included a warm water bypass out of Shasta Reservoir that preserves a cold-water pool for later in the season; an emergency pulse flow action on Clear Creek; and coordinated water transfer delay to maintain storage levels later into the water year. Real time operation data and information regarding the collaborative working groups can be found at Central Valley Operations (CVO) - California-Great Basin Region.

Department of Health and Human Services

In FY 2021, the Centers for Disease Control and Prevention (CDC) added a drought indicator to the National Environmental Public Health Tracking Network that includes historical drought measures. It can be accessed by selecting drought as a content area at the National Environmental Public Health Tracking Network page. This data is downloadable, mappable, and can be paired with health data. CDC also continues to share information to protect health during droughts via social media. Additionally, CDC is continuing work on a large-scale research project examining the health impacts of drought utilizing insurance claims information.

Environmental Protection Agency

Other drought resilience strategies include EPA's FY 2021 coordination with Federal and State partners in California to pilot a one-stop shop to help water and wastewater utilities identify possible drought mitigation strategies and funding available to mitigate drought. This effort also included other Federal agencies and State partners who helped utilities navigate existing programs.

Additionally, the EPA WaterSense program continues to help communities become more resilient to drought. A major update to the WaterSense Labeled-Homes program involved a specification to label soil moisture sensor-based irrigation controllers and developed new resources to help water utilities and communities communicate with the public about drought-related issues.

Department of Interior

In FY 2021, BOR reprogrammed $100 million for a suite of drought relief projects including salinity control; water conservation; temporary pumps and pipes to access water below intakes; wildfire suppression and fuel reduction; Tribal assistance activities; reservoir re-operations; forecasting tools; fishery project; groundwater recharge; water storage; and water transfers.

In FY 2021, BOR selected 227 new WaterSMART projects, leveraging $73.2 million in Federal funding with States, Tribes, and local entities. These funds were utilized with the aim of realizing on-the-ground projects that would foster water conservation; increase the efficiency of water deliveries; enhance the reliability of supply during drought; construct water reuse and recycling facilities; and restore watersheds. These projects also involved the development of applied science tools and collaborative planning effort to address drought and climate change.

Department of Agriculture

In addition to its historic BIL funding, USDA is delivering $10 billion in Emergency Relief for agricultural producers impacted by droughts, wildfires, hurricanes, winter storms, and other eligible natural disaster events experienced during calendar years 2020 and 2021. These investments are in addition to an already extensive portfolio of indemnity, emergency credit, and direct payment disaster recovery programs; they also complement the longer-term climate and drought-related resilience investments that USDA is making in agriculture and rural communities.

Moreover, in FY 2021, the NRCS selected 15 new projects and continued to offer funding in 25 previously-approved priority funding areas, unlocking $21 million of Environmental Quality Incentives Program WaterSMART Initiative (EQIP-WSI) funds to complement the activities of a specific BOR WaterSMART project. Six types of activities in the BOR WaterSMART projects will be complemented by EQIP-WSI contract activities: water delivery automation and monitoring; canal lining or replacement with pipe; other infrastructure modernization; drought response; stream restoration; and watershed restoration. The most common agricultural conservation practices being contracted through EQIP-WSI funding include irrigation water management; irrigation water conveyance; structures for water control; cover crops; and sprinkler irrigation systems. NRCS and BOR have been coordinating EQIP and WaterSMART

investments to accelerate cumulative water savings and related drought resilience benefits in since the pilot began in California in 2011. This collaborative work continues throughout the West.

In FY 2021, NRCS identified *Water Resources and Increased Resilience* as a priority concern under the NRCS Conservation Innovation Grants (CIG) Program to stimulate the development and adoption of approaches that address climate-smart water quality and quantity issues. Three proposals were funded within this category, totaling over $2.4 million (Low-Tech Process Based In-Stream Structures to Increase Climate Resiliency in the Great Plains, *Juniper Environmental, LLC*; On-Farm Water Capture and Reuse: Performance Demonstration, Economic Feasibility, and Design Tool Development, *North Carolina State University;* and Mesoscale Artificial Intelligence (AI) Based Root-Zone Soil Moisture Monitoring for Efficient Farm Irrigation, *Worcester Polytechnic Institute).* CIG projects are expected to incorporate conservation technologies, management systems, and innovative approaches to agricultural producers, into technical manuals and guides.

NRCS is also providing innovative technology for aquifer and groundwater recharge through two interim conservation practice standards, *Managed Aquifer Recharge and Groundwater Recharge Basin or Trench.* The NRCS in California will begin evaluating their effectiveness as part of their FY 2022 conservation program delivery. These innovations should slow rates of aquifer decline through the intentional increase in groundwater recharge.

The USDA Agricultural Research Services (ARS) continues to support and implement the National Coordinated Soil Moisture Monitoring Strategy Document recently adopted by the National Integrated Drought Information System (NIDIS). ARS scientists are conducting sensor calibration across a variety of State and National networks, assisting with data interpretation and documentation for standards and protocols, and coordinating workshops for the contributors to the network. Additionally, the ARS Grape Remote sensing Atmospheric Profile and Evapotranspiration eXperiment (GRAPEX) project is developing an operational water use and evapotranspiration (ET) toolkit based on satellite remote sensing for irrigation management in vinicultural systems in California. The USDA-ARS is adapting tree crop eemote sensing of the Evapotranspiration eXperiment (T-REX) to almonds and other tree crops for increasing water savings in the California Central Valley. With the OpenET project, this product will be readily available to fruit and nut growers in California, which cover over three million acres.

The USDA Climate Hubs continue to focus on drought and are working closely with regional partners including the NOAA and NIDIS teams and their Drought Early Warning Program, the National Drought Mitigation Center, the NOAA Climate Predictions Center, and the National Weather Service's Community Collaborative Rain Snow and Hail network. Each Hub provides regional, web-based drought resources and supports distribution of the U.S. Drought Monitor materials. In addition, the Midwest Climate Hub collaborated with Federal and State partners on the Drought Early Warning System, an information network that supports Midwest farmers in monitoring, forecasting, and planning for drought. The Climate Hubs are also developing agricultural commodity guides to provide farmers in the Southeast with practical solutions to address drought. In 2021, the Climate Hubs expanded Drought Learning Networks to enhance peer-to-peer learning on drought and organized a new network in the Caribbean.

The USDA Office of the Chief Economist (OCE) has entered into Cooperative Agreements with the National Drought Mitigation Center for the purpose of improving the accuracy and usability

of the U.S. Drought Monitor (USDM). The projects and deliverables date back to 2008 and include notable improvements for the ability of underserved communities to benefit from the USDM, including: building a drought climatology for Tribal groups; allowing producers in the U.S. Virgin Islands and Affiliated Pacific Islands to qualify for USDA drought programs; and developing the first ever Spanish Language USDM. Other deliverables include "Grass-Cast," a tool developed under the leadership of USDA's Climate Hub to prepare producers for losses of feed and forage.

The USDA Economic Research Service (ERS) has a portfolio of research projects and output regarding drought resilience in the irrigated agricultural sector. Many of the potential investments in improved resiliency are related to infrastructure improvements such as canal lining and piping, improved water metering, and managed aquifer recharge facilities. In FY 2022, ERS published two economic briefs based on data from the 2019 Survey of Irrigation Organizations. The first of these reports found that most conveyance infrastructure is unlined due to the high costs of lining. The second of these reports found that as part of their drought planning process, the most common types of water conservation investments made by water delivery organizations are improved water metering and canal lining.

The USDA Forest Service's research and development team published 88 peer-reviewed publications in 2021 related to drought monitoring, impacts and management responses, advancing place-based understanding of the effects of forest thinning, fuel treatments, and other strategies to improve drought resilience.

Department of Defense

DOD installations on Pacific islands face multiple climate-related threats, including tropical cyclones, droughts, floods, and increased rates of sea level rise. With the Strategic Environmental Research and Development Program Project (ID RC-2336), the project team led by Woods Hole Oceanographic Institution in collaboration with Princeton, MIT, and the University of Colorado, provides probabilistic information on potential climate-related threats that might arise from changes in water availability, sea level rise, and changes in tropical cyclone activity for DOD bases across the Pacific over the 21st Century. These results can be used for planning adaptation strategies to make DOD assets more resilient to these threats, and for providing motivation to develop alternatives if vulnerable assets are likely to lack resilience.

Department of the Army

Through its Civil Works mission, the U.S. Army Corps of Engineers (USACE) supports drought resilience in communities, Tribes, States, and other Federal agencies through its existing water infrastructure operations; ecosystem restoration actions; multi-objective planning studies; scientific data and tools development and application; and financial supporting for new infrastructure and conservation actions. In 2022, BIL funds of $30 million will allow USACE to develop and install enhanced soil moisture and snowpack monitoring stations in the Great Plains to support drought management. USACE is also partnering with DOI and the State of California to use $1.5 million for restoration activities in the Salton Sea that could ultimately facilitate additional conservation actions in the region to build resilience and help ensure future water availability for urban and rural needs. In California's Central Valley, the U.S. Army Corps of

Engineers is initiating a new study of the Yolo Bypass to comprehensively assess flood risk management, water supply, agricultural enhancement, and habitat protection and restoration as part of a large-scale overall effort to address water resource challenges over the long-term.

During 2022, USACE allocated over $70 million for environmental infrastructure in Western states most impacted by drought. Examples include using $2.25 million on a reclaimed water pipeline in Arizona; $600,000 for non-potable water distribution line for irrigation on the Pascua Yaqui Reservation; and $4.4 million to fund a brackish water desalination facility for communities in Southern California to reduce water supply pressures. In Arizona alone, one of the states most impacted by recent drought, USACE is investing over $18 million for new environmental infrastructure projects. Finally, through forecast informed reservoir operation pilot projects and the evaluation of other proposals to modify long-standing operations of existing reservoirs, USACE will continue to work with water providers in the West to build drought resilience.