WESTERN STATES WATER COUNCIL

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Web Page: www.westernstateswater.org

March 4, 2024

The Honorable Steve Scalise, Majority Leader
U.S. House of Representatives
Washington, DC 20515

The Honorable Hakeem Jeffries, Democratic Leader
U.S. House of Representatives
Washington, DC 20515

The Honorable Frank Lucas, Chair
Committee on Science, Space and Technology
U.S. House of Representatives
Washington, DC 20515

The Honorable Zoe Lofgren, Ranking Member
Committee on Science, Space and Technology
U.S. House of Representatives
Washington, DC 20515

RE: Weather Act Reauthorization Act of 2023 (H.R.6093) and provisions for NOAA's National Integrated Drought Information System (NIDIS)

Dear Majority Leader, Democratic Leader, Chair Lucas and Ranking Member Lofgren:

The Western States Water Council (WSWC) is a bi-partisan government entity created by Western Governors in 1965, and represents eighteen states. Our members are appointed by and serve at the pleasure of their respective Governors, advising them on water policy issues. Our mission is to ensure that the West has an adequate, secure, and sustainable supply of water of suitable quality to meet its diverse economic and environmental needs now and in the future.

We wish to express support for the Weather Act Reauthorization Act of 2023 (H.R. 6093) to improve the National Oceanic and Atmospheric Administration's weather research, and support improvements in weather forecasting and prediction. WSWC strongly believes all levels of government must prioritize the collection, analysis, and open sharing of reliable data regarding water availability, quality, and usage given its importance to research for sound science and data-driven decision making.

The WSWC supports data sharing between agencies and has long supported the National Integrated Drought Information System (NIDIS), and appreciates reauthorization of the program with the increased funding. This interagency partnership coordinates drought monitoring, forecasting, and research that assists states, tribes, and communities across the arid West to facilitate more proactive decision-making.

The WSWC also supports improvements to sub-seasonal to seasonal (S2S) forecasting. While the Climate Prediction Center (CPC) has been providing seasonal forecasts since the mid-1990s, the forecasting skill has shown little improvement in the past 30 years, and is still insufficient to support meaningful water management decisions at ideal lead-times. As noted in the attached WSWC Policy Position No. 491, WSWC supports authorizing federal action to: (1) improve precipitation forecasting at

S2S scales in the West; and (2) implement pilot programs to improve S2S forecasting in the Mountain West and Great Plains. Section 501 of H.R. 6093 directs the Undersecretary to establish such pilot programs.

WSWC appreciates NOAA's role in providing weather forecasting products. Continued and expanded reauthorization of the Weather Act is essential to enhance NOAA's weather prediction skill and improve the products that minimize loss of life, property, and economic resources.

The attached WSWC Policy Position No. 500 acknowledges the critical importance of several NOAA line agencies and their research, forecasting, and data collection programs, such as the National Weather Service (NWS) Office of Atmospheric Research (OAR), National Environmental Satellite Data and Information Service (NESDIS), and National Centers for Environmental Information (NCEI). These programs support water management and state preparedness for weather extremes. H.R. 6093 reauthorizes, expands, and modernizes these programs, including establishing an atmospheric river forecast improvement program (Section 204), a NESDIS research-to-operational transition program (Section 207), and a precipitation forecast improvement program (Section 507).

WSWC urges full authorization of these measures, and encourages Congress to continue to place a high priority on NOAA research and weather modeling.

Respectfully,

Tony Willardson
Executive Director

Position No. 491

RESOLUTION
of the
WESTERN STATES WATER COUNCIL
Urging Congress and the Administration to Support

SUBSEASONAL to SEASONAL
WEATHER RESEARCH, FORECASTING, and INNOVATION

Reno, Nevada
May 24, 2023

WHEREAS, Western States experience great subseasonal, seasonal, and annual variability in precipitation, with serious impacts and consequences for water supply planning and management, drought and flood preparedness and response, water rights administration, operation of water projects, and aging water infrastructure; and

WHEREAS, sound decision-making to protect life and property by reducing flood risks and to inform decisions involving billions of dollars of economic activity for urban centers, agriculture, hydropower generation, and fisheries depends on our ability to observe, understand, model, predict, and adapt to precipitation variability on operational time scales ranging from a few weeks to a season or more; and

WHEREAS, investments in observations, modeling, high-performance computing capabilities, research, and operational forecasting of precipitation provide an opportunity to significantly improve planning and water project operations to reduce flood damages, mitigate economic and environmental damages, and maximize water storage and water use efficiency; and

WHEREAS, operating aging water infrastructure in the face of growing and often competing water supply and water management demands requires that state, federal, tribal, and local agencies optimize operations for maximum efficiency and seek innovations, such as improved subseasonal to seasonal forecasting (S2S), to support their decision-making; and

WHEREAS, the responsibility for operational weather forecasting rests with the National Weather Service (NWS), and currently NWS has minimal skill in making S2S outlooks; and

WHEREAS, there is a need to prioritize National Oceanic and Atmospheric Administration (NOAA) research and weather modeling to improve operational sub-seasonal and seasonal precipitation forecasts, with attention to Western needs; and

WHEREAS, NOAA submitted a report[1] to Congress pursuant to Section 201 of the Weather Research and Forecasting Innovation Act of 2017 (P.L. 115-25) recommending pilot projects to improve S2S forecasts for water management in the western U.S.; and

[1] https://repository.library.noaa.gov/view/noaa/27408

WHEREAS, the Flood Level Observation, Operations, and Decision Support (FLOODS) Act of 2022 (P.L. 117-316) directs NOAA to improve S2S forecasting to support flood management.

NOW, THEREFORE, BE IT RESOLVED that the Western States Water Council supports the reauthorization of the Weather Act and its implementation, together with the FLOODS Act, authorizing federal action to improve precipitation forecasting at S2S scales in the West, and urges NOAA to move forward with pilot projects for improving S2S winter precipitation forecasting in the mountain west and summer precipitation forecasting in the Great Plains.

BE IT FURTHER RESOLVED that the Western States Water Council supports adequate Congressional appropriations directed toward the improvement of S2S forecasting.

(See also Position #441, 3/6/20; and #399, 4/14/17)

Position No. 500

RESOLUTION
of the
WESTERN STATES WATER COUNCIL
supporting
NOAA DATA, FORECASTING, AND RESEARCH PROGRAMS

Reno, Nevada
May 24, 2023

WHEREAS, federal agency data and research programs provide an important foundation for supporting water management decision-making by western federal, state, and local agencies and tribes; and

WHEREAS, the National Oceanic and Atmospheric Administration (NOAA) collects weather and climate data through in-situ and remotely sensed observations, issues forecasts and outlooks of precipitation and temperature and weather hazard warnings, and conducts research to improve forecasting and

WHEREAS, line agencies within NOAA – including the National Weather Service (NWS), Office of Atmospheric Research (OAR), National Environmental Satellite Data and Information Service (NESDIS), and National Centers for Environmental Information (NCEI) – manage the programs that collect data, issue forecasts, and conduct research; and

WHEREAS, the information obtained through these programs supports water management and preparing for and responding to the extremes of drought and flooding; and

WHEREAS, water management in the West is both defined by and challenged by high annual variability in precipitation and by the extremes of drought and flooding; and

WHEREAS, recent billion-dollar weather disasters in the West have included: recent western flooding and mudslides, severe weather and wildfires (2023): extensive West and Midwest drought, heatwave, and wildfires, as well as severe Central weather and North Central and South Central hail (2022): Western drought, heatwave and wildfires, with California flooding, as well as Central and South Central severe storms and cold wave (2021); continued drought, heatwave, wildfires, as well as severe storms and hail (2020);Missouri River and northern Great Plains flooding (2019):;Colorado hail storms (multiple years), drought in the southern Great Plains (2018); California and Nevada flooding (2017),;severe multi-year drought in California and much of the West (2012-16); Texas and Oklahoma flooding (2015); and flooding in Texas resulting from Hurricane Harvey (2017); drought across the southern Great Plains (2011); Missouri River and northern Great Plains flooding (2011); and

WHEREAS, the Colorado River Basin is experiencing a 20+year drought, one of the more severe in the tree-ring record, and tree ring data shows that there have been numerous multi-decadal or mega-droughts in the basin and some suggest drought may be the new normal for the region; and

WHEREAS, the NWS Cooperative Observer Program has provided the only long-record spatially dense precipitation observing system in rural areas and especially in mountain regions where precipitation is highly variable, but is not being supported and modernized in proportion to the high value it provides for measuring extreme precipitation; and

WHEREAS, NWS River Forecast Centers (RFCs) play an important role in using weather and climate data to produce streamflow forecasts, and in delivering forecast products to end users; and

WHEREAS, weather forecasts are operationally issued out to about two weeks but most of the forecast skill is in the first seven days; and

WHEREAS, research observing systems developed through OAR's Hydrometeorology Testbed program have demonstrated the potential for improving weather forecasts through innovative instrumentation; and

WHEREAS, the skill of precipitation forecasts at the sub-seasonal to seasonal (S2S) time scale (two weeks to two years) is minimal and is insufficient to support water management decision-making at these lead times important for flood and drought preparedness and response; and

WHEREAS, the Weather Research and Forecasting Innovation Act of 2017 (WRFIA) directed NOAA to improve its S2S forecasting ability and to submit a report to Congress on research and resources needed to improve forecasting; and

WHEREAS, a coordinated effort by the NWS Climate Prediction Center (CPC), NWS Office of Weather and Air Quality Research, and OAR and its Laboratories is needed to improve S2S precipitation forecasting; and

WHEREAS, improving S2S precipitation forecasting will require targeted observations, dedication of high-performance computing resources, focused research, and improvements to dynamical and statistical modeling; and

WHEREAS, the production of NWS' existing S2S precipitation outlooks began in the mid-1990s and has shown no significant increase in skill since that time, pointing to the need for new approaches and focused pilot projects to improve forecasting skill; and

WHEREAS, OAR's testbed programs (Climate Testbed, Hydrometeorology Testbed) have an important role in transitioning research to operational forecasting: and

WHEREAS, OAR's information delivery programs (Regional Integrated Services and Assessments, National Integrated Drought Information System) help translate research to end user communities; and

WHEREAS, improving drought prediction entails research supported through OAR on climate dynamics and process studies, developing and applying paleoclimate data sets, and regionally focused pilot research projects; and

WHEREAS, NCEI's Regional Climate Centers (RCCs) provide special-purpose, customized data products such as daily plots of mountain freezing elevations or precipitation anomalies for regional water and agricultural stakeholders; and

WHEREAS, the satellite data collected by NESDIS' Geostationary Operational Environmental Satellites (GOES) program is foundational to modern weather forecasting, with GOES-17 just having transitioned to operations as GOES-West in 2020; and

WHEREAS, OAR supports the collection and acquisition of tropical ocean temperature profiles and other data from sources such as the TAO/Triton array of moored buoys, data that are used for monitoring El Nino-Southern Oscillation status; and

NOW, THEREFORE, BE IT RESOLVED, that NWS should preserve and modernize the NWS Cooperative Observer Program.

BE IT FURTHER RESOLVED, that OAR should sustain and expand its Hydrometeorology Testbed – West program to build upon progress made in that program for developing and installing new technologies for precipitation observations, and should continue and expand ocean observations that are critical for weather and S2S forecasting.

BE IT FURTHER RESOLVED, that NOAA should place a priority on implementing the provisions of WRFIA regarding improving S2S precipitation forecasting skill, and should submit the report to Congress on S2S forecasting required by WRFIA.

BE IT FURTHER RESOLVED, that the Western States Water Council urges the NWS-OAR development of regional pilot projects to improve S2S precipitation forecasting, including a pilot on cool season precipitation forecasting in the mountain West and a pilot on summer precipitation forecasting in the Plains.

BE IT FURTHER RESOLVED, that the Western States Water Council supports the NWS CPC's efforts to improve the utility and skill of its S2S outlooks.

BE IT FURTHER RESOLVED, that the Western States Water Council supports the climate data products provided by the NCEI's RCCs, and urges NCEI to fully fund the RCCs.

BE IT FURTHER RESOLVED, that the Western States Water Council supports OAR programs to transition research to operations, and NWS and OAR programs to deliver information to end users.

BE IT FURTHER RESOLVED, that the Western States Water Council will work with NOAA in supporting efforts on improving weather and S2S forecasting.

(See also Position #450, 7/22/20; #407, 6/29/17; #366, 7/18/14; #332, 7/29/11)