DRAFT
WATER RESOURCES COMMITTEE
WORK PLAN
2019/2020

1. WATER AVAILABILITY & USE - WATER DATA EXCHANGE (WaDE)

Background/Work-to-date: The Council continues to work with member states and federal agencies through the Western States Federal Agency Support Team (WestFAST) to build on the existing WaDE data-sharing platform and update it to a more robust and performant architecture – Phase 2. WaDE 2.0 is a cloud-based schema. The entire design of WaDE 2.0 has been centered around supporting use cases for data queries to support decision making within and across state boundaries. Along with the development of WaDE 2.0 system, WSWC have been working on connecting publicly available water rights and water use datasets as published by our member state agencies into the WaDE SQL database. WSWC is working on developing a user-friendly portal to allow farmers, decision makers, managers, and researchers to access, filter, and analyze water rights and water use data. Nine WSWC members states water rights data has been transitioned to the new WaDE 2.0 and four more are in the process. Aggregate water use data for five states has been transitioned, and three more are in process.

The original WaDE portal supported data from sixteen states and eighteen WSWC state water agencies. With assistance, Montana is developing WaDE-compliant data services that will feed directly into the new WaDE platform. North Dakota is revamping their data program and has deferred their implementation at this time. Some eastern states have expressed interest in deploying to the WaDE platform also, with a proto-type completed for New Jersey. WSWC will work with ICWP and through the USGS Water Use Data and Research (WUDR) program to engage states and other entities that wish to serve data in the WaDE platform.

WaDE is collaborating with and seeking to help integrate other national efforts, including the Water Availability and Use Program (WAUSP), which is led by the U.S. Geological Survey (USGS), as well as federal and non-federal open water data initiatives. WaDE supports these efforts by laying the groundwork for exchanging the core state data that may be used to support these studies. Greater interoperability and consistent data standards between federal data portals and other sensor-based, time-series portals under development by the Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) are goals of the program.

The WSWC co-hosted a Water Information Management System (WIMS) workshop with NASA's Western Water Applications Office (WWAO) in 2018 and plans to continue hosting these events every one to two years into the future (with the next one planned in mid-2019).

2020/2021: WSWC is renovating the WaDE architecture for a more robust and centralized application using cloud computing technology and adapting the current system to support specific use cases of the data, including a streamlined, spatially and temporally consistent water budget implementation for selected states. WSWC will also continue assisting participating member states to refine their data, find optimal ways to publish those data that are compatible with WaDE,

as well as providing funding and internship support for states' data programs. A WaDE beta portal with water rights and water use data is expected this Fall.

The Council will collaborate with other states who are implementing new "open water data" legislation with interoperability and data standards setting guidance. The Council will also continue working with member states, USGS, NASA and various federal agencies to gather and disseminate water resources data using WaDE and other resources. The Council will also partner with USGS on facilitating funding to states for water data through the WUDR program.

The Committee, through the Water Information and Data Subcommittee (WIDS) and various other work groups, will continue to gather information on state water availability and use data and summarize existing state capabilities. Work to help states develop, disseminate, visualize and review data on water availability will continue. The WSWC seeks resources to assist states, and a number of foundations are providing support.

The WIDS and WIMS will encourage dialogue on water data and science related topics between both WSWC appointees and their IT and data program management staff. Topics include water use reporting/permitting systems, IT-related adjudications topics, cloud and on-site architectures for data management, use of sensor-based and "big data," remote-sensing innovations and tools under development.

Further, WSWC will assist CUAHSI by advising on data-standards and interoperability, reviewing their data products, assisting with the planning of data-related workshops.

Subcommittee: Sam Hermitte (TX), Lisa Williams, Natalie Mast (AZ), Mat Weaver, Linda Davis (ID), Ken Stahr (OR), Julie Cunningham, Kent Wilkins (OK), Gary Darling (CA), Steve Wolff (WY), Todd Adams, Candice Hasenyager (UT), Lane Letourneau, Ginger Pugh (KS), Nancy Barber (USGS), Allison Danner (USBOR), Dwane Young (USEPA), Forrest Melton (NASA)

Timeframe: Ongoing

2. WESTERN WATER OBSERVING SYSTEMS

Background/Work-to-date: The Council has a long history of working to support federal programs to maintain and improve the observation, measurement, monitoring and management of western water resources and related data, including related Interior, NASA, NOAA and USDA programs (see Position #396 September 30, 2016, and #428, October 26, 2018). Such programs include but are not limited to USGS cooperative streamgaging and groundwater monitoring, NRCS snow survey and water supply forecasting, NASA/USGS Landsat, and EPA water quality monitoring. These data are important for a number of applications. Some examples include, but are certainly not limited to: (a) state and regional water planning and water rights analyses; (b) local watershed and urban planning and development via more consistent water balances and water budgets; (c) siting of electric power generation and other energy production facilities; and (d) enabling a better understanding of the links between energy, water quantity, and water quality.

2020/2021: The Council will communicate the critical need for federal water data related programs and will revise and renew its message to better bring attention to water data needs and develop strategies to meet those needs. Consistent reliable future funding will be one major focus. There are a number of items under this functional area. Part of this effort will be to highlight critical measuring and monitoring "tools" for any water management "toolbox," and communicating their value for enhancing our ability to wisely manage water resources.

Subcommittee:

Timeframe: Ongoing

3. SUB-SEASONAL to SEASONAL PRECIPITATION FORECASTING

Work to date: The Western States Water Council (WSWC) and California Department of Water Resources (CDWR) have entered into a number of agreements to assist with efforts to improve sub-seasonal to seasonal (S2S) forecasting skill (2 weeks to one year). Two workshops were held in 2015. Two additional workshops were held in 2016. The Council prepared a report on these meetings and an outreach publication with recommendations to NOAA on improvements regarding sub-seasonal to seasonal precipitation forecasting. Other S2S workshops were held in San Diego in 2017, 2018 and 2019.

2020/2021: Additional S2S workshops are anticipated, and the Council will work to support federal efforts to improve our predictive capabilities and skill. (Position #399, April 14, 2017) The Council will support efforts to acquire sufficient federal appropriations for appropriate programs.

Subcommittee:

Timeframe:

4. RESEARCH to OPERATIONS (R2O)/TECHNOLOGY TRANSFER

Background: Too often promising water resources related discoveries and scientific advances fail to lead to widespread improvements for a variety of reasons, some technical, but often institutional, financial, economic or political. Research to Operations (R2O) and technology transfer success require advance planning and effective partnerships that are often lacking. Academic and government research agencies may focus on important basic research, but even applied research organizations are generally not designed and staffed to bridge the so-called "valley of death" between researchers and those entities and individuals that can successfully envision and leverage resources to add value to that research through management, policy and operational changes.

Work to date: In August 2019, in cooperation with NASA's Western Water Applications Office (WWAO), the Council sponsored a workshop intended to identify and begin to address the challenges inherent in effectively moving research advances towards improvements in water resources management operations. The workshop brought together partners from federal and state

agencies that have experience with technology transfer, or that have programs that could be adopters of new technology and remotely sensed information products Next steps were outlined in the summary workshop report.

2020/2021: A second WSWC/NASA workshop will build upon the insights identified and connections established to advance workshop objectives to: (1) Strengthen agency partnerships and continue building an inter-agency community to facilitate R2O in water resource management by – (a) including participants across Federal agencies that have research and/or operational involvement in water resource management, including representatives from USGS, NOAA, NASA, and USBR; (b) structuring the workshop to be interactive and dialogue-based; and (3) soliciting feedback and follow-up engagement from participants in the development of a workshop report that synthesizes the current shared challenges, best practices, and pathway forward for R2O in water resource management. (2) Develop WSWC's WestFAST network to help transition new technologies and information products for water resources management to operational federal programs, including, but not limited to, remote sensing-based measurement technologies and sub-seasonal to seasonal (S2S) weather forecasting by – (a) engaging WestFAST members in the workshop Steering Committee; and (b) identifying technologies that meet water resource management needs and have high potential for R2O. (3) Develop a strategy for raising awareness and support within state and federal government for R2O through – (a) defining what "success" looks like; (b) discussing and documenting a pathway and associated timeline for financial planning for R2O, learning from projects that have been successful in R2O;
(c) discussing and documenting a pathway and associated timeline for technical planning and coordination, learning from successful projects; and (d) helping the research community understand the process and lead times necessary for successful transition of projects to operational federal agency programs Together we will identify best practices to transfer applied research to operational programs in western federal, state, and local water agencies and tribes.

5. DROUGHT, NIDIS and EXTREME WEATHER EVENTS

Work to Date: Drought is a recurring natural phenomenon, the effects of which can be minimized through appropriate planning and preparedness activities. The Council has expressed its support for federal applied research and hydroclimate data collection programs to assist water agencies at all levels of government in adapting to weather extremes and climate variability and change (Position #421, March 14, 2018 and #428 October 26, 2018). The Council also supports development of an improved western observing system for extreme precipitation events and research to better understand hydroclimate processes (Position #407, June 29, 2017). The Council's Executive Director serves as Co-Chair of the National Integrated Drought Information System (NIDIS) Executive Council with NOAA and USDA.

2020/2021: The Committee will continue working to improve preparedness and response to drought, floods and other extreme events in cooperation with member states, the WGA and WestFAST. The Council will also continue to support and advise WGA and NOAA with respect to NIDIS, and other weather/climate monitoring and adaptation efforts (including RISAs work). The Council will work to evaluate proposed climate, drought and weather legislation and drought related authorities and programs of federal agencies.

Subcommittee:

Time Frame: Ongoing

6. GROUNDWATER RECHARGE PROJECT PROGRAMS & POLICIES

Work to Date: The Council has in the past addressed groundwater management programs and policies, including recharge and aquifer storage and recovery projects. The Council prepared a number of reports covering financial feasibility, legal and institutional issues, and water reuse for recharge (1990-2012). Much of the work is now dated, and many changes have taken place.

2020/2021: Working with the Legal Committee and the Council, the Committee will update past reports on state groundwater management programs and especially efforts to promote conjunctive use of surface and groundwater resources through artificial aquifer storage and recovery projects. This may include the use or reuse of waters of impaired quality.

Subcommittee:

Timeframe:

7. WESTERN WATER INFRASTRUCTURE PROJECTS AND PROGRAM FUNDING

Work to date: Many western states face overwhelming infrastructure financing needs, as well as declining budgets for ongoing services. The Council's origins are associated with challenges to augment and better manage the West's water supply, which continues to be a priority. The Council has in the past prepared reports on state water resources programs and project cost sharing and financing and analyzed state water use fees. The Council has also convened symposia and workshops and summarized the proceedings. The Council has also compiled summaries of western state infrastructure financing authorities, funding sources, policies and programs. Further, the Council has supported expenditures from the Reclamation Fund for authorized project purposes, including specifically authorized rural water supply projects and authorized projects as part of negotiated Indian water rights settlements.

2020/2021: The Council will continue to call on the Congress to ensure that revenues raised from the development of western resources, specifically revenues accruing to the Reclamation Fund, are appropriated and expended as intended for the development and management of western water resources (consistent with Position #408, June 29, 2017). The Council will otherwise support efforts to secure adequate federal funding to meet growing western water demands, and work to develop a strategy to communicate important infrastructure needs. The Council will promote development of public-private partnerships to support this effort. The Council will sponsor a symposium on infrastructure needs, strategies, and federal and state programs, under the direction of the Executive Committee, with WestFAST's assistance and in cooperation with other non-federal and federal interests. Regulatory streamlining is also important for water resource projects. The Council will work with the Administration and Congress towards successful water project development. Finally, the Council will provide a summary of western state water financing authorities and programs.

Subcommittee:

Time Frame:

8. ENERGY & WATER RESOURCES – INTEGRATED MANAGEMENT

Work to date: The increase in demands for water to meet energy needs is raising interest in the interrelationship between water and power resources, including opportunities to better understand the energy-water nexus and maximize efficiencies. The Council has addressed various aspects of energy issues as they relate to water resources as part of its regular meetings, including the demand for water resources created by new energy development. Hydraulic fracturing is a current issue and long standing practice with which the states have considerable experience. The use of water produced by energy development has also been discussed. The Council has also urged the Administration and Congress to support Department of Energy hosted energy-water programs conducted at national laboratories (Position #395, July 15, 2016). The Council has participated with the Western Electric Coordinating Council (WECC) and related State Provincial Steering Group and Environmental Data Work Group.

2020/2021: As resources permit, the Council will continue to compile existing information through WaDE addressing water availability and anticipated demands for energy resources development (and the implications for water use in the West). Further, the Council will consider and evaluate any federal legislation and other potential collaborative efforts in addressing energy and water needs, as well as related water quality concerns. The Council will evaluate as appropriate specific energy and water-related issues as they arise, such as hydraulic fracturing, hydropower licensing, Clean Water Act Section 401 certification, and other practices.

Subcommittee:

Timeframe: Ongoing

2019 Items 7. and 8. have been included in the Legal Committee workplan