RESOLUTION
of the
WESTERN STATES WATER COUNCIL
supporting
FEDERAL RESEARCH AND DEVELOPMENT OF UPDATED HYDROCLIMATE GUIDANCE FOR EXTREME METEOROLOGICAL EVENTS

Bend, Oregon
July 29, 2011

WHEREAS, Western states have recently been experiencing near-record flooding, droughts, or wildfires that threaten public safety, tax aging water infrastructure, and/or have significant economic consequences; and

WHEREAS, before the first half of 2011 was over, the year had already set records for extreme weather events, with the nation having experienced eight $1 billion-plus disasters, according to the National Oceanic and Atmospheric Administration (NOAA); and

WHEREAS, extreme weather events have grown more frequent in the U.S. since 1980, according to NOAA; and

WHEREAS, the top twelve warmest years on record globally all have occurred since 1997, and we must manage for frequency, extent, and/or severity of floods, coastal inundation, and droughts; and

WHEREAS, some of NOAA's probable maximum precipitation estimates used by water agencies for dam safety analyses have not been updated since the 1960s and the federal Guidelines for Determining Flood Flow Frequency Analysis (published as Bulletin 17B) have not been revised since 1981, and neither of these guidance documents address hydroclimate non-stationarity; and

WHEREAS, flood frequency analyses are used by public agencies at all levels of government to design and manage flood control and stormwater infrastructure, with Bulletin 17B still representing a default standard of engineering practice; and

WHEREAS, federal funding for hydrology research has waned since the 1970s-1980s, and alternative statistical methodologies for flood frequency analyses or deterministic analytical procedures are not being supported and transitioned to common engineering practice; and

WHEREAS, the Federal Emergency Management Agency has adopted a process for local communities to explicitly incorporate "future conditions hydrology" in the national flood insurance program's flood hazards mapping; and

WHEREAS, a federal agency committee composed of the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, NOAA, U.S. Geological Survey, and U.S. Environmental Protection Agency held a 2010 national science workshop on non-stationarity, hydrologic frequency analysis, and water management, to identify information gaps and the state of the science for handling hydroclimate uncertainty; and

WHEREAS, the Council co-sponsored a 2011 workshop on hydroclimate non-stationarity and extreme events, to identify actions that could be taken at planning to operational time scales to improve readiness for extreme events; and

WHEREAS, the federal and the Council workshops identified multiple approaches that could be employed at the planning time scale, including ensembles of global circulation models, paleoclimate analyses, and alternative techniques for flood frequency analysis; and

WHEREAS, advances in weather forecasting research, such as that of NOAA's Hydrometeorological testbed program on West Coast atmospheric rivers, demonstrate the potential for improving extreme event forecasting at the operational time scale; and

WHEREAS, the 2006 Western Governors' Association (WGA) report on *Water Needs and Strategies for a Sustainable Future* and the follow-up 2008 WGA *Next Steps* report identify addressing climate change impacts as a priority for moving forward, and make specific recommendations for actions that the federal government and the states should take to support adaptation, including detailing research and planning needs.

WHEREAS, WGA and NOAA signed a memorandum of understanding on June 30, 2011, regarding state adaptation to climate variability and change that focuses on climate extremes, variability and future trends as they relate to disaster risk reduction and improved science for coastal and marine resource management; and

WHEREAS, the Draft Vision and Strategic Framework for a Climate Service in NOAA includes changes in extremes of weather and climate as one of the four key societal challenges that will initially be a focus of the climate service.

NOW, THEREFORE, BE IT RESOLVED, that the federal government should update and revise its guidance documents for hydrologic data and methodologies – among them precipitation-frequency estimates, flood frequency analyses, and probable maximum precipitation – to include subsequently observed data and new analytical approaches; and

BE IT FURTHER RESOLVED, that the Western States Water Council supports development of an improved observing system for Western extreme precipitation events, to aid in monitoring, prediction, and climate trend analysis associated with extreme weather events; and

BE IT FURTHER RESOLVED, that the Western States Water Council urges the federal government to support and place a priority on research related to extreme events, including research on better understanding of hydroclimate processes, paleoflood analysis, design of monitoring and change detection networks, and probabilistic outlooks of climate extremes.

BE IT FURTHER RESOLVED, that the Western States Water Council will work with NOAA in supporting efforts on climate extremes, variability, and future trends as called for in the WGA-NOAA memorandum of understanding.