Mountain Counties Water Resources Association's

Sierra Nevada Headwaters Policy Principles

Introduction:

MCWRA's mission is to unite agencies, groups and individuals whose interests include protecting and enhancing Mountain County water resources throughout the foreseeable future. The water resources of the Sierra Nevada Mountains (Sierra) are critical to the health of the State's economic and environmental well-being. To maintain and enhance the water resources for future generations, the MCWRA Board of Directors has established Sierra Nevada Headwater Policy Principles to serve as an important resource for public and private water and land managers at every level, including state, federal, and local governments.

Background:

The Sierra is the point of origin and catchment basin for a major portion of the State of California's water supply. These forested headwaters contain a dense network of creeks, streams, canals, and rivers that feed tributaries to the Sacramento and San Joaquin Rivers. Precipitations from these headwaters provide essential local, regional, and statewide social, economic, and environmental benefits, including:

- Up to 2/3 of California's developed water supply; sustaining residences, agriculture, industry, and employment within and outside the region.
- 15% of California's energy supply through carbon-free hydro-electric power generation; the Region also provides other forms of renewable energy, such as geothermal, wind, solar, and biomass energy production.

The Sierra Nevada Mountains are:

- Home to 60% of California's animal and 50% of California's plant species; three hundred and fifty of these species can be found only in the Sierra.
- Generator of tourism and recreation jobs and revenue to local communities and refuge to 50 million visitors each year, who come to enjoy the breathtaking natural beauty, exceptional recreational opportunities, and rich history and culture offered by the Region.
- Producer of up to 50% of California's annual timber yield.
- Provide tremendous capacity to remove carbon from California's air and store it in Sierra forests and rangelands.

The combined forces of population growth, rising sea level, climate change, extended droughts, and the concern for endangered species, habitat and sustainable forests to ensure reliable water supply and water quality, have put California's citizens, its economy, and its environmental resources at imminent risk of disaster. Improved water and natural resources management is needed in the Sierra to increase efficiency, resiliency, and flexibility in the water management system to increase local and regional water supply reliability, protect valuable agricultural land, and to provide for critical downstream water supply and habitat.

California must move away from the old paradigm of resource extraction, to a new paradigm of resource stewardship to protect our vital water resources. There needs to be an ongoing holistic solution to protect and enhance the headwaters starting at the crest of the Sierra. Left alone, the headwaters will further lose resiliency, contributing to adverse effects in most regions of the State. If the forest is not properly managed for water, climate change, and recurring drought, the frequency of catastrophic wildland fires will increase, water quality will degrade, sedimentation will increase, and water supply reliability will decline. These adverse changes will affect the ecosystem, water supplies, hydropower generation, and flood management.

MCWRA's primary objective is to advocate for the water interests of its membership. MCWRA also recognizes the significant role that watershed stewardship in the Sierra has on the rest of the State. The State needs to acknowledge and adapt to the changing conditions and implement the following Headwater Policy Principles.

These water resources have a greater chance to be available for its member water agencies in the future, if public and private water and land managers at every level, including state, federal, and local governments, adhere to the following Sierra Nevada Headwater Policy Principles (Principles):

1) Support infrastructure improvements and other measures advocated in these Principles that preserve and protect the natural, cultural, historic, scenic, and agricultural resources, within the headwaters of the Sierra.

2) Support forest management practices to promote healthy forests, and enhance water resources.

3) Support policies that educate water customers, students, community leaders, property owners, non-governments organizations, Native American Tribes, business groups, and local, state and federal water officials.

4) Support increased collaborative intergovernmental relations with local, state and federal agencies.

5) Support efforts to identify and implement new surface and groundwater water storage projects starting at the crest of the Sierra.

6) Support all forms of recreation in the headwaters that do not degrade the watershed or water quality parameters within the Sierra Watershed.

7) Support viable and sustainable agriculture within the Sierra and throughout California.

8) Support Integrated Regional and Statewide Water Management Planning efforts to identify, finance and implement increased investments in natural and man-made water infrastructure to increase the water carrying capacity in the Sierra.

9) Support actions and land use planning decisions that protect and enhance water quality and water quantity.

10) Support and promote in-conduit hydropower, energy efficiency, and 'water as energy storage' to reduce energy costs and increase energy self-sufficiency.

11) Support a balanced, interest-based approach to resolving conflicts that provide win-win solutions.

12) Support water transfers between willing sellers and willing buyers, and avoid regulatory takings.

13) Support science-based methodologies to solving technical issues raised within these Principles.

14) Support the concept that water in the Sierra needs to be slowed down and sequestered within the watersheds as long as possible.

15) Support actions to advance the stewardship of not only the Sierra, but across all the watersheds and headwaters in the State.

16) Support actions to optimize recycling opportunities, cost-effective water efficiency practices, groundwater injection, and desalination to reduce demand on the Sierra.

Action Items

1) Action items for water use efficiency include, and are not limited to: a) agricultural use; b) gray water; c) recycled water; d) storm water capture; e) conjunctive use; and f) desalination.

2) Educational topics for action include: a) the source of California's water; b) the value of the water; c) area-of-origin water rights law and history; d) how to conserve water; and e) the need for research and investment in the watersheds to protect Sierra Nevada water.

3) Mutual aid action items can take the form of a) sending emergency leak repair crews; b) financing methods to achieve the goals discussed within these Principles; c) water use efficiency materials and methods; and d) developing contractual agreements to reduce costs of operations and maintenance with neighbors within close proximity for water and hydroelectric facilities, etc.

4) Governmental relations shall be encouraged between a) other local water districts; b) local special districts; c) county governments; d) state agencies; e) federal agencies; f) Native American Tribes; g) with water purveyors, trade associations and Joint Powers Authorities in other parts of the State where communication and/or agreements lead to mutual benefit; and h) relations with non-governmental organizations are also encouraged. High level relationships between agencies can increase coordination and communication, reduce fragmentation, reduce redundancy, reduce time for the completion of projects, reduce costs to the water ratepayers, and increase salient information exchange between groups.

5) Water transfers action items may be: a) statewide; b) between watersheds; and c) between water districts within the mountain counties region.

6) A prioritized list of water storage projects in the Sierra Nevada can take the form of: a) groundwater banking; b) dredging existing reservoirs; c) raising the dam heights of existing reservoirs; d) meadow restorations; e) forest management practices that increase the runoff to precipitation ratio; f) off-stream storage; g) storm water capture impoundments; and h) selling surplus surface water to a groundwater purveyors in wet years for ground water recharge. On-stream storage is the least preferred water storage alternative because of strong opposition from environmental organizations, however, this type of storage needs to be determined on a case-by-case basis.

7) MCWRA supports timber management action items for biomass thinning that: a) reduce the threat of catastrophic wildfires in the forested lands and along the urban-wild lands interface; b) utilizes biomass for the creation of energy, wood products and jobs for our rural communities; c) MCWRA supports timber harvest plans that protects water quality; d) timber harvest plans should not cause damage to the riparian corridors adjacent to mountain rivers and streams; e) MCWRA supports forest management thinning practices that have the potential to increase water yield, for later in the season run off; and f) MCWRA supports other types of research that increases the sustainability and resilience of the forest ecosystems.

8) Water infrastructure improvements would include: a) using natural river courses where feasible to transmit water; b) utilizing a series of "rapids" to generate a hydraulic head for a water diversion which safely enables fish flows and recreational opportunities; c) repair of aging distribution lines; d) repair of aging canals; e) increased water distribution system storage (such as is needed in the Tahoe area for increased fire flow capacity; f) use of existing and new storage for pumped hydroelectric systems that will help balance and improve the efficiency of the electric grid; g) responsible sludge handling systems for water and wastewater facilities; and h) water treatment upgrades for distribution system capacity and water quality.

9) Potential actions to increase funding for the Sierra Nevada projects may include: a) creating the business case for funding the project; b) seeking increased bond funding share for Sierra Nevada from all past and present bond measure; c) seeking allocations of funding through the State's Department of Water Resources (DWR) Integrated Regional Water Management (IRWM) program; d) applying for low cost loans (drinking water) through the California Department of Public Health (CDPH); e) seeking State Revolving Loan Fund (SRF) (wastewater) through the State Water Resources Control Board (SWRCB); f) developing a grant proposal for the Sierra Nevada Conservancy's grant program; g) researching the use of cap and trade funds for greenhouse gas (GHG) reduction programs and projects; h) making the business case for the use of the electric sector's public goods charge funding potential (approximately 25 percent of the energy used in California is consumed to heat, treat or move water); i) partnering with electric utilities to use pumped hydroelectric operations to capitalize on the differential pricing between on peak and off peak electricity supplies; j) encouraging the use of federal monies for national forest management to enhance water supply and water quality on federal lands; k) seeking federal funds from the Water Resources Development Act (WRDA); and l) applying for Department of Energy grants for renewable energy projects.

10) Water quality activities may include: a) toxic site clean-up and mercury remediation; b) increase monitoring and data acquisition for water quality parameters such as temperature, dissolved oxygen, turbidity and other parameters where appropriate; c) research sediment best management practices for grazing, off road vehicles, road building and maintenance, logging practices, and implement measures to manage and reduce erosion and sediment; d) reduce sources of contamination for metals, salts, fertilizers, pharmaceuticals, pesticides; e) programs that eradicate or control invasive species; f) stream bank restoration efforts; and g) protecting groundwater quality.

11) Land use planning decisions that can protect water quality and water quantity include: a) preparation for flood risk; b) drought planning; c) aid in the recharge of groundwater basins; d) encourage low impact development practices; e) adaptations to the potential for climate change.

12) A science based approach should be used to improve our knowledge of: a) water efficiency practices; b) storm water capture techniques; c) legacy mining remediation; d) forest management practices that increased run off from the Sierra Nevada; e) invasive species control methods; and f) flood and drought preparedness.

13) Action items to slow water down may include natural infrastructure such as: a) as meadows; b) wetlands; c) flood plains; d) water to groundwater recharge zones; e) riparian areas; and f) open

space, and native habitats should be preserved and restored as valued assets for flood protection and groundwater recharge. In rural communities, water holding areas such as: a) creek beds; b) recessed athletic fields; c) stormwater system and other ponds; d) cisterns; and f) other features that serve to recharge groundwater and reduce runoff should be incorporated into the rural community landscapes.

14) External affairs action items could include: a) the co-equal goals for water supply reliability and ecosystem restoration in the Delta; b) the efficient use of water in the agricultural sector; c) levee repairs within the San Joaquin and Sacramento Rivers Delta system; d) in Delta salinity barriers that would reduce to need for upstream water release to control salinity standards in the Delta; e) reservoir reoperations based on up-to-date meteorological forecasting and real-time flow data within the watersheds; f) cross-sector collaboration such as between the water, electric utility, insurance, forest/fire management industries; g) support regulatory reform for special districts from the Proposition 218 requirements; h) the beneficiary pays principle for water projects; and i) encourage the use of desalination of ocean water as a water supply.

Appendix I - Sierra Nevada Ecosystem Project's Influence

Information, to be useful must be accurate, relevant, timely, and verifiable. For the Sierra Nevada Headwaters Policy Principles be useful for decision-makers, the authors anchored their early development of these principles in scientific findings presented in the Sierra Nevada Ecosystem Project (SNEP) Report. Although the SNEP Report was completed in 1997, most of the findings are still relevant today. The primary source of California's water supply is the Sierra Nevada Mountains. The watersheds in the Sierra produce over 10 million acre feet of water per year, every year. Sierran watersheds capture, filter, sink and bank the largest portion of the State's water supply in its vast landscapes of forests, meadows, lakes and soils. This aggregate natural storage infrastructure with an equally vast and not well understood hydrologic underground movement of cold, clean water is a finite resource.

The ability of the Sierra Nevada Mountain Range to sequester water and carbon, release oxygen, and provide habitat for most of the state's biological diversity is considered an ecological service with immense value. The scale is such that if these ecosystem services were to unravel, the consequences would have major impacts to agricultural, commercial, economic and environmental sectors of the State of California. Therefore, for California, water supply reliability depends on maintaining, and potentially optimizing the Sierra's capacity to sequester water in all its many forms.

The Sierra Nevada Policy Principles trace their scientific validity to the *Sierra Nevada Ecosystem Project,* a congressionally mandated study that addresses the impairments and stressors to the Sierra Nevada Mountains as a natural system.

The [SNEP] report is a scientific assessment that highlights what is known and presents individual and collective judgments about what this knowledge means in meeting the stated goal of protecting the health and sustainability of the Sierra Nevada while providing resources to meet human needs. Such an assessment leads directly to some of the choices that lie before the public.

According to the critical findings in Chapter 8, page 124, of the SNEP Report "California's economy derives enormous benefit from the water diverted from the streams, rivers and lakes of the Sierra Nevada. A major cost associated with these benefits has been deterioration of the biotic integrity and sustainability of the aquatic systems, as reflected in the declines in the distribution and abundance of native aquatic and riparian organisms. Water determines the distribution and abundance of many plants and animals throughout the Sierra by shaping and providing habitat… Development of streams and other resources of the Sierra Nevada over the past 150 years has met downstream demands of society throughout California but has impaired the quality and availability of water for both ecological and social needs in many parts of the range."

The purpose of the Headwaters Policy Principles is to call attention to the fact that the critical findings from the SNEP have not been addressed. The Sierra Nevada ecosystem produces approximately $2.2 billion worth of commodities and services annually and water accounts for 60% of this value, or about $1.32 billion in 1997 dollars. Depending on where one draws the boundary lines for the Sierra Nevada, this mountain range provides 40 to 65 percent of the State's developed water supply.

Appendix II – Sierra Nevada Conservancy's Influence

To a great extent, the authors of the Sierra Nevada Headwaters Policy Principles (Principles), chose principles that were in alignment with the mission and goals of the Sierra Nevada Conservancy (SNC). The enabling legislation for the SNC is known as the Sierra Nevada Conservancy Act (AB 2600, Laird-Leslie, 2004).

AB 2600, Sierra Nevada Conservancy.

The people of the State of California do enact as follows:

33300. This division shall be known, and may be cited, as the Laird-Leslie Sierra Nevada Conservancy Act.

33301. The Legislature finds and declares all of the following:

(a) The Sierra Nevada Region is a globally significant area, including many national and state parks, the highest peaks in the 48 contiguous states, and large, pristine areas that are open for public use.

(b) The Sierra Nevada Region is an important part of the state's economy, providing substantial agricultural products, timber resources, ranching, mining, tourism, and recreation.

(c) The Sierra Nevada Region provides 65 percent of California's developed water supply and nearly all of the water supply for western Nevada. As California's principal watershed, the region is the critical source of water for urban and rural parts of northern and southern California.

(d) In cooperation with local governments, private business, nonprofit organizations, and the public, a Sierra Nevada Conservancy can help do all of the following:

(1) Provide increased opportunities for tourism and recreation.

(2) Protect, conserve, and restore the region's physical, cultural, archaeological, historical, and living resources.

(3) Aid in the preservation of working landscapes.

(4) Reduce the risk of natural disasters, such as wildfires.

(5) Protect and improve water and air quality.

(6) Assist the regional economy through the operation of the conservancy's program.

(7) Identify the highest priority projects and initiatives for which funding is needed.

(8) Undertake efforts to enhance public use and enjoyment of lands owned by the public.

(9) Support efforts that advance both environmental preservation and the economic well-being of Sierra residents in a complementary manner.

Appendix III – Definitions

- Sierra Nevada Headwaters: The Sierra Nevada Headwaters consists of the watershed areas from the peaks of the Sierra Nevada Mountains, down through the mid-level conifer forests, and include portions of the blue oak forests within the lower foothill zone. Currently, the headwaters within the Mountain Counties Water Resources Association's (MCWRA) membership area consists of the Department of Water Resources (DWR) planning areas 508, 604, and 610. In large part, the following policy principles would also be applicable to the southern Sierra (DWR PA 707) and the southern Cascade Range (DWR PA 501).

- Sustainability/resilient ecosystem integrity: In the context of Sierra Nevada Headwaters, MCWRA defines sustainability as actively managing the resource at the local level in a way that satisfies the needs of both the environment and the economy while ensuring the continued health of the each watershed. Sustainability does not diminish or degrade the cultural fabric of jobs, agriculture, water supply, water supply reliability, and adapts to changing conditions to protect valued resources. Sustainability does not pit the welfare of one species, one community, one watershed, one region, against another. Sustainability works for the survival of all stakeholders. Resiliency of a landscape is the ability of that landscape to maintain healthy populations of native species densities and dynamics in the face of the natural variations of geophysical and biological cycles, and anthropogenic land management practices.

- Natural resources: (water, minerals and materials, timber, aquatic, riparian zones, wetlands, groundwater, terrestrial, species, species diversity species habitat and corridors),

- Natural Infrastructure: Refers to the "strategic use of networks of natural lands, working landscapes, and other open spaces to conserve ecosystem values and functions and provide associated values to human populations." Forests, wetlands, riparian buffers, and other natural elements on the landscape can comprise natural infrastructure when strategically used and managed to provide services for communities through land acquisition and conservation easements, low-impact development, conservation practices on agricultural and forested lands. (Allen 2012) (1) (p.10)

Appendix IV – Contributing Authors

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Appendix V – References and Research Materials

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