



ORGANIZATIONAL UNIT PROPOSAL FORM

DIRECTIONS: Use this form when proposing a new organizational unit, center, institute, department, school, or college.

DATE OF REQUEST: April 22, 2016

Date of AAC Approval:

April 27, 2016

INSTITUTION: University of Nevada, Reno

NAME OF PROPOSED UNIT: Global Water Center: Solutions for Sustainability

Date of Board Approval:

DATE OF IMPLEMENTATION: July 1, 2016

PART I

A. Action requested

Develop a new center at the University of Nevada, Reno.

B. Brief description and purpose of proposed unit

Although water is ubiquitous, high-quality freshwater for humans and natural ecosystems is scarce and valuable. Because distribution of water resources is uneven across the globe, water is a nexus of global struggle, and increasing pressures on water resources are driven by large-scale perturbations such as climate change, invasive species, dam development and diversions, pathogen occurrence, nutrient deposition, pollution, toxic chemicals, and increasing and competing human demands. These problems are multidimensional and require integrative, data-driven solutions that cannot be tackled and resolved by isolated scientific disciplines or single investigators. Additionally, there is urgent need to translate basic science and research into actionable solutions accessible to a variety of stakeholders on local, regional, national, and global scales.

The University of Nevada's *Global Water Center: Solutions for Sustainability* (GWC) is a response to societal demands for creative, integrative approaches in solving complex issues related to water resources. The GWC brings together experts from diverse disciplines across the University, nongovernmental organizations, and governmental agencies, with ad hoc participation from NSHE units (DRI, UNLV) as opportunities arise. **The goal of the GWC is to solve large-scale and long-term problems related to water sustainability.**

The GWC will accomplish this goal by providing a physical venue, organizational structure, and a collaborative culture to foster scientific interaction and discovery, pursue emerging research opportunities, and address stakeholder concerns in an efficient and timely manner. Additionally, the GWC will educate and train the next generation of scientists to tackle emerging water issues by providing them with a wide breadth of knowledge and conceptual thinking needed to communicate scientific findings to an often disengaged or unaware public.

C. Outline plans for the success of the proposed unit

The Global Water Center will foster creative, interdisciplinary research to answer critical questions related to water resource management. The success is based largely on the unit's bottom-up, faculty-driven approach to tackle emerging water issues by providing workspace development to foster interdisciplinary proposal submissions and peer-reviewed journal articles in top academic journals (e.g. *Science*, *Nature*, *PNAS*). The GWC will be located under the VPRI office to facilitate direct contact with state, regional, and international policymakers. The GWC wants to facilitate streamlined and efficient responses steeped in scientific methods of discovery to assist policy makers with decision-making.

PART II

A. Mission statement

The GWC seeks to develop innovative, information-driven solutions and emerging technologies to resolve competing freshwater demands, enable sustainable water use and supply, and provide sound science across disciplines to maintain vital, productive ecosystems and societies.

B. Goals and objectives

i. Teaching

The GWC will not be involved with teaching assignments for faculty associated with the GWC. Teaching assignments will be determined by departments and colleges where faculty hold their appointments. The GWC will promote a highly active, interdisciplinary unit, which will educate the next generation of scientists to tackle emerging water issues by providing them with a wide breadth of knowledge and conceptual thinking related to the implementation of projects. Undergraduate students, graduate students, and postdoctoral scholars will work on interdisciplinary research projects; hence, contributing to experiential learning and augmenting the classroom instruction per curricular approved for the specific discipline. The GWC will seek faculty who are committed to promoting research and training of the next generation of scientists.

The UNR Graduate Program in Hydrologic Sciences will be closely aligned with the Global Water Center. There are a number of faculty associated with the GWC who mentor graduate students through the Graduate Program in Hydrologic Sciences. Integrating the graduate education and interdisciplinary research has the potential of elevating both programs yielding an efficient administration of both units.

There are ongoing discussions across NSHE units regarding a Statewide Water Program. The proposed GWC does not preclude the development of a Statewide Water Program but is considered to enhance this opportunity by developing resources and needs at the University of Nevada, Reno.

ii. Research

The GWC is a response to societal demands for creative, integrative approaches in solving complex issues related to water resources. The GWC will bring together experts from diverse disciplines across the University, nongovernmental organizations, and governmental agencies whose collective goal is to solve large-scale and long-term problems related to water sustainability. The GWC will accomplish this goal by providing a physical venue,

organizational structure, and collaborative culture to foster scientific interaction, pursue emerging research opportunities, and address stakeholder concerns in an efficient and timely manner. The University of Nevada, Reno GWC will work with faculty from our sister NSHE units [the Desert Research Institute (DRI) and the University of Nevada, Las Vegas (UNLV)] as opportunities arise.

iii. Service

By action and organizational structure, the GWC is a service-focused research unit. One of the primary goals of the GWC is to bring together faculty and researchers with expertise in water from state, federal, and nongovernmental organizations to answer critical questions related to water resources and quality, and improve the lives of the people of the Nevada, the region, the nation, and the world. The GWC will serve as a global resource on water-related issues.

C. Major participants or collaborators

i. Internal to campus

University level engagement: a history of contribution to solving water issues

From global to local projects, UNR research has played a key role in conserving water quality of threatened water resources from global-continental to regional scales, in Asia to Antarctica, and in the Western United States to the small towns within the Sierra Nevada. UNR researchers' expertise includes hydrology, limnology, aquatic and riparian ecology, geography, political and social sciences, climate science, and contaminant transport. In addition, UNR has leaders in the development of novel tools to sense the environment including emerging drone technologies and Illumina Next Generation DNA sequencing for detecting biodiversity within water through environmental DNA measurements. UNR is also the home of nationally recognized graduate programs in Hydrologic Sciences and Ecology, Evolution, and Conservation Biology that involve numerous faculty from many departments from UNR and DRI. Our University's already strong capability in water-related disciplines will be improved by increasing connectivity among researchers, academic units, and between researchers and stakeholders, a general goal of the University's latest strategic plan. The GWC will help to address the need at the University for gaining successful, large funded interdisciplinary research projects.

At the University level, faculty who are part of the GWC will be come from at least 7 departments in 5 colleges (Engineering; Science; Education; Business; Agriculture, Biotechnology and Natural Resources); the GWC will provide a way for them to easily collaborate on large proposals, research efforts, seminars, and other activities. At the student level, the GWC will connect with undergraduate students in Ecohydrology and Hydrogeology and interact with water-related clubs such as the University's Ecohydrology Club, the Student Chapter of the American Fisheries Society, the Student Chapter of the American Water Resources Association, and the Student Association for International Water Issues. Such interactions would include encouraging their participation in research activities (e.g., field sampling, touring facilities or project sites, etc.) and supporting their outreach activities. Students doing research at the GWC would attain graduate degrees through existing graduate programs in Biology, Natural Resources and Environmental Science, Geology, Geography, Political Science, and other departments, as well as interdisciplinary graduate programs including the Graduate Program of Hydrologic Sciences, the Ecology, Evolution, and Conservation Biology Ph.D. Program, and the Graduate Program of Environmental Sciences. Student projects could be showcased as part of Student World Water Forum, an annual student

organized activity that brings together undergraduate and graduate students to share their knowledge on various water related topics.

ii. External to campus

Synergy with University and Across Organizations

The GWC will foster research and management activity related to solving water issues in the region. GWC associated faculty will have a philosophy of open collaboration and inclusion, and will work with faculty from our sister NSHE units (UNLV and DRI) as opportunities arise. A primary goal of the GWC is to develop a Cooperative Water Science and Management Unit (hereafter a COOP, see below). There is not an academic or institutional program in our region that has attempted such an integrated activity across federal, governmental, and nonprofit units specifically tackling water issues. This has the potential to bring resources to researchers to develop stronger focused connections to fund broadly interdisciplinary and student research projects.

Preliminary discussions with state and federal agencies and nongovernmental organizations has resulted in excitement for the creation of a COOP unit between academic institutions and stakeholders (see Table 1).

Table 1. External stakeholders that would become part of a Water Sustainability COOP UNIT from the national and regional level.

Agency	Agency type
Tahoe Regional Planning Agency	Regional
US Forest Service	Federal
Bureau of Reclamation	Federal
Bureau of Land Management	Federal
National Park Service (Lake Mead National Recreation Area and Crater Lake National Park)	Federal
US Fish and Wildlife Service	Federal
Nevada Division of State Lands	State
California Department of Fish and Wildlife	State
Nevada Department of Wildlife	State
Tahoe Resource Conservation District	Nongovernmental organization
Trout Unlimited	Nongovernmental organization
California Trout	Nongovernmental organization
League to Save Lake Tahoe	Nongovernmental organization
Great Basin Institute	Nongovernmental organization
US Geological Survey	Federal
Southern Nevada Water Authority	Regional

The Nature Conservancy	Nongovernmental
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Memorandum of understanding (MOU) to develop a Cooperative Science and Management Water Research Unit. One of the primary goals of the GWC is to serve stakeholders within federal, state, and nongovernmental organizations. UNR will work with the GWC to develop a common MOU between UNR and participating agencies to develop a Cooperative Science and Management Water Research Unit (COOP unit described earlier). This MOU will be critical in transferring funds across agency units in a timely manner in order to facilitate research needs.

D. Evidence of contact within and between affected academic units

The detail for the proposed GWC has largely been driven by bottom-up in discussions among interested faculty. Faculty from 6 departments in 5 colleges across UNR have provided input to this proposal since their initial meetings in 2014. Any successful research and training center needs to be responsive to stakeholders’ needs and be able to rapidly adapt to the changing funding opportunities at the national and global level. The GWC will provide such responsiveness and will provide a mechanism to facilitate faculty collaboration on large grant proposals, research efforts, seminars, and other activities.

E. Proposed physical location

1049 Evans Street, Reno, NV; property owned by the University of Nevada.

The GWC’s physical home will be near the UNR campus (1049 Evans Street, hereafter referred to as SPACE). The GWC will engage tenure-stream and research faculty, as well as students and postdoctoral scholars throughout the NSHE and develop a culture that fosters creative thinking.

The GWC will be a lean and nimble operation with a primary core of UNR faculty (hereafter referred to as CORE) that have a wide variety of expertise tackling water issues. The CORE have been identified and chosen for their ability to work together, current connection to external resources needed to facilitate the development of the GWC’s mission, and academic tenure to provide internal mentorship for all GWC participants. A second team of faculty (hereafter referred to as AFFILIATES) that have experience in interdisciplinary research, a strong desire to develop sustainable environmental policies, and experience working with both basic and applied funding agencies will help guide the GWC’s mission. AFFILIATES will be tenure-stream faculty and research faculty and can rotate in and out of the GWC at any time.

To be considered as part of the GWC the rotating faculty should have active funded projects that are directly related to the GWC’s mission.

The CORE and AFFILIATES will work from their department physical location designated by their home institution. The GWC SPACE will be utilized to foster intellectual thinking and interdisciplinary work by housing some of the members of the COOP unit (Table 1), postdoctoral researchers, and visiting professors who will guide the GWC. In addition, the SPACE allows GWC members to interact with stakeholders. The SPACE will be equipped with videoconferencing equipment and AV equipment such as SMART-Boards for presentations. The Director and Associate Director will also maintain office space at the GWC which they are expected to occupy while conducting GWC activities.

F. Proposed organizational structure (include organizational structure within the campus)

Faculty structure and directorship. This will be a bottom-up, faculty-driven center. The GWC will implement its water-focused research mission directly under the Vice President for Research and Innovation (VPRI). Having the GWC operate at one level below the UNR administration will allow it to be directly responsive to policy makers and other stakeholders that approach the administration with their water-research needs and allows for the efficient processing of grant applications and implementation of research projects. The GWC Director and faculty associated with a given college (COS, Engineering, CABNR, Education, Business, etc.) will meet annually with their respective college deans and department chairs to provide them updates on GWC activities and contributions to their units.

Decision making at the GWC will be the responsibility of both CORE and AFFILIATE faculty to ensure a bottom-up faculty governance structure. A Director and Associate Director will be selected from CORE faculty and serve on a rotational basis (3 year) to reinforce shared governance and ensure that all participants remain engaged in research activities. The Director's job duties include developing, coordinating, and facilitating funding for a multidisciplinary program that intersects policy, economics, and the natural sciences related to the most pressing environmental issues on local, state, national, and global scales. An Associate Director will be selected from the CORE to facilitate interactions and day-to-day project activities, assist with administrative duties, and support the Director in building national and global recognition for the GWC.

An advisory board of globally recognized researchers and citizens that have worked at the interface of public policy in the areas of water sustainability will be selected to provide guidance to the GWC's development as well as assist with raising funds and connecting with stakeholders. Their duties are advisory and include attending an annual virtual meeting to assist in advising the unit on directions and planning for GWC activities. Proposed Advisory Board members include: UNLV (1 person TBD), DRI (1 person TBD), Dr. Stephen Chapra (Tufts University, Louis Berger Chair of Civil and Environmental Engineering), Dr. Jill Baron (US Geological Survey, Powell Center Director), Stephen Carpenter (University of Wisconsin Madison, US National Academy of Sciences), Warwick Vincent (Canadian National Academy of Sciences, Laval University), Kit Batten (US AID Climate Change Director), Terri Johnson (Deputy Director, U.S. Department of the Interior, Office of the Secretary).

G. Activities to be sponsored (e.g. courses, seminars, research, and outreach) – indicate if courses or seminars will be offered through the proposed unit. Please specify if they will be offered for academic credit and applicable to a degree program. Give estimated enrollment.

As noted above, relevant courses will be taught through academic departments and colleges.

H. Resource Analysis – source of funds necessary for the proposed change (enrollment-generated state funds, reallocation of existing funds, grants, other state funds)

GWC Operating Analysis and Support

Research Facilitation

Initial funding to start the GWC is provided through a retention package to UNR faculty member Dr. Sudeep Chandra in the College of Science. Base operating costs (\$20,400) will be provided by the UNR VPRI to the Dean of the College of Science through FY2018. Operating funds will provide resources for infrastructure (e.g., computers, desks, tables, chairs, writing boards, teleconference equipment, and internet) at the 1049 Evans St. GWC location, and offset various faculty expenses (e.g., publication charges, workshop and seminar development, and proposal development).

Additional funding for the GWC’s research operations will come from indirect costs generated by grants of faculty who are associated with the center. The model that will be used by the University to support centers is under development. The GWC will also support research activities through direct development including donations. In 2015-16, approximately \$46,000 has been donated to support GWC-related activities. It is expected that donor development will grow to support GWC-related activities given the importance of water to our region. The GWC will work with development officers of participating academic colleges to strategically pursue development opportunities.

Graduate Program in Hydrologic Sciences.

As mentioned previously, the GWC will be closely aligned with the Graduate Program in Hydrologic Sciences (GPHS), which is a joint program between UNR and DRI. Like all interdisciplinary graduate programs at UNR, the GPHS is administered by the UNR Graduate School. The alignment of the GWC and the GPHS will facilitate the integration of research development and graduate training and education. In order to support the administration of the GPHS program, the Graduate School will provide a stipend for the GPHS Program Director (\$4,000), an operating budget (\$28,000), and two Graduate Teaching Assistantships for (\$1700/ mo. for 10 months per GTA, plus grant-in-aid and fringe benefits).

I. Projected Budget – identify portions of costs which will require state resources, grants, gifts and/or contracts

Estimated budget, Year 1			
Research facilitation	\$ Requested	Source	Use of funds
	20,000	UNR VPRI (through FY18)	Operating
	A percentage of total grant/contract funding, models under development/ consideration at the University	Indirect costs generated from faculty contracts/ grants	Operating
	46,000	Private Gift/ Donation	Operating for specific activities
Graduate Program in Hydrologic Science Administration	4,000	Graduate School	Program Director Stipend
	48,000	Graduate School	2- Graduate Teaching Assistantships to recruit PhD students
	28,000	Graduate School	Operating

Please attach any supporting documentation (i.e. support letters from community, industry)

April 11, 2016

To Whom It May Concern:

A changing climate is placing additional stress on this already limited water resources. Further, access to clean and reliable water is a critical issue for our region, national and the world. The proposed Global Water Center at UNR seeks to address many of the key aspects related to water availability and impacts by bring together faculty and researchers with expertise in water to answer critical questions related to water resources and quality, and improve lives of the people of Nevada, the region, and the nation. This is a worthwhile effort and I commend the faculty for taking this up as a strategic priority.

We support UNR's proposal to implement the Global Water Center and think there will be possibility collaborative opportunities in the state as UNLV has various faculty involved in water research/education. The proposed Center will be a compliment to the Water Resources Management program at UNLV and potentially future water initiatives at UNLV that are a strategic priority. We look forward to developing new programs that will be mutually beneficial to both UNR's and UNLV's research efforts.

We are pleased to offer our support for UNR's Global Water Center and look forward to a successful collaboration. This is a much-needed center in our state and please let me know how UNLV can be of assistance to ensure the success of this center.

Sincerely,



Thomas C. Piechota, Ph.D., P.E.
Vice President for Research and Economic Development

CC: Nancy Rapoport, Acting Executive Vice President and Provost
Carl Reiber, Senior Vice Provost

April 10, 2016

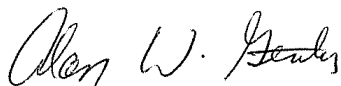
To Whom It May Concern:

Access to clean water is one of the most critical environmental and social issues we face today. Further, a changing climate is placing additional stress on this already limited resource. Understanding the factors affecting this precious resource, along with the impacts of changing water availability on human and ecosystem health is critical if we are to develop and implement effective policies to sustain continued growth and development. The proposed Global Water Center at UNR seeks to address many of the key aspects related to water availability and impacts.

Given the societal importance of addressing water-related issues, DRI endorses UNR's proposal to implement the Global Water Center. The proposal, as outlined, couples well with many of our ongoing programs and we are looking forward to developing new programs that will be mutually beneficial to both UNR's and DRI's research efforts.

Good luck with this effort and please let me know how DRI can be of assistance to ensure the success of UNR's Global Water Center.

Sincerely,



Alan W. Gertler, Ph.D.
Vice President for Research

To whom it may concern:

I would like to provide this letter of support for the proposed *Global Water Center: Solutions for Sustainability* at the University of Nevada. I am the Desert Terminal Lakes Program Manager with the Bureau of Reclamation (Reclamation) in Nevada. I have reviewed the description of the Global Water Center and strongly believe that a cross-disciplinary Center dedicated to solving water issues in our region and abroad is timely, and would be an extremely meaningful and effective venue for a wide range of water managers and water users.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. Our agency is the largest wholesaler of water in the country, bringing water to more than 31 million people and providing irrigation water for western farmlands that produce 60% of the nation's vegetables and 25% of its fruits. As a contemporary water management agency we recognize the ongoing need to balance the multitude of competing uses of water in the West.

The proposed Center appears to mesh very well with the mission and vision of Reclamation. I believe Reclamation both locally and nationally could benefit from the type of proposed scientific research and development of integrative approaches in solving complex issues related to water resources proposed by the Global Water Center. It is a shared goal to find ways to bring together the variety of interests to address the competing needs for our limited water resources. The described goal to bring together experts from diverse disciplines appears to be an excellent plan for addressing widespread problems of water sustainability.

As manager of the Desert Terminal Lakes Program representing three water basins in Nevada and California I have experienced many years of advances in solutions to water issues that affect fish, wildlife, and the human environment. I have also witnessed an essential need for more work and collaboration amongst a variety of land and water managers, scientists, and others to continue working towards long-term solutions.

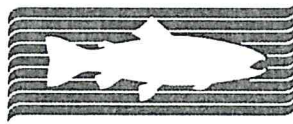
On behalf of Reclamation's Desert Terminal Lakes Program, I provide this letter of support for the proposed Global Water Center and look forward to working collaboratively with the Center's staff in the future.

Sincerely,

A handwritten signature in black ink that reads "Caryn Hunt DeCarlo". The signature is written in a cursive style with a large initial 'C'.

Caryn Hunt DeCarlo
Desert Terminal Lakes Program Manager

CALIFORNIA TROUT



FISH · WATER · PEOPLE

November 9, 2015

To: Board of Regents
University of Nevada Reno

RE: California Trout's support for *UNR's Global Water Center*

To Whom It May Concern,

On behalf of California Trout, I am writing to express our excitement and support for the University of Nevada's Global Water Center. California Trout is a 501(c)(3) registered in California and has been in existence for more than 40 years. The focus of our work centers on salmonid restoration, management and policy of which *water* is front and center. Both domestically and internationally, I personally am familiar with challenges humans, as well as other flora and fauna, face pertaining to water resources. Given the current drought here in California, global impacts associated with a changing climate, along with issues pertaining to water and food security, the University's Center is both critically needed and quite timely in its formation.

It is my understanding that the Center aims to not only provide a venue in which experts in their respective field can come together to address important issues having to do with water resources, the center will also provide an essential need to train and educate the next generation of researchers, water resources managers and policy makers. As water continues to become more and more important there is a need for increased capacity to address challenges ahead. For the center to be successful, it will take strong leadership, forward thinkers and creative strategies. During the course of the last eight years, I have had the distinct opportunity to work with several faculty members from UNR, including Dr. Sudeep Chandra, Dr. Rene Henery and Dr. Ben Sullivan. Based on my experience with UNR as an institution as well as with individual faculty, I am quite confident that the Center will achieve its goal and serve a global need to ensure the sustainability of water resources and the livelihoods that depend upon them.

I sincerely wish the University the very best of luck and encourage the Board of Regents to support the Center moving forward.

Sincerely,

Mark Drew, Ph.D.

Director, Sierra Headwaters Program, California Trout
Director, Inyo-Mono Integrated Regional Water Management Program

February 16, 2016

To Whom It May Concern,

I am writing to support the proposed *Global Water Center: Solutions for Sustainability* (GWC) to be located on the University of Nevada, Reno campus. The Center's anticipated scope provides a compelling response to the pressing need for continued University leadership in interdisciplinary, applied research in environmental sciences. As the co-founder and Executive Director of the Great Basin Institute (GBI), I envision the Center providing essential support and partnership opportunities that would enhance our shared mission of educating and promoting the next generation of young scientists serving our environment.

Founded in 1999, the Great Basin Institute (GBI), an environmental research, education, and conservation organization, serves as an outreach vehicle for the university, placing students and graduates in federal, state, county, and NGO environmental research projects throughout the West. The Center's proposed innovative research strategy, which unites the very same partnering agencies and institutions whom we serve, will greatly assist our organization while addressing the critical issues surrounding imperiled aquatic systems. Indeed, there remains significant disconnection between academic research and public lands management, and the presence of a Center dedicated to bridging such gaps would be well received by those in our environmental community.

In terms of specific areas of collaboration, as the Co-Principle Investigator of the National Science Foundation's Research Experience for Undergraduates (REU), I see immediate benefits to our NSF program through the creation of the Center. In implementing the REU program, the Institute will collaborate closely with the Center while conducting ongoing regional research efforts. Our overarching research theme examines how changes in rates and timing of snowpack melt alter water quality and availability for aquatic and terrestrial biotic systems. Increased rates of runoff result in levels of nutrient loading that have not been seen previously in the history of the region. The increased levels of nutrients affecting the lake, streams, meadows, and springs have generated measurable changes in water clarity, algal blooms, and types and numbers of plants and animals in these ecosystems. This trend threatens both natural and economic resources vital to Lake Tahoe and Great Basin communities. I envision significant intersections between our NSF program and the Center's research teams and laboratory support services.

Moreover, our Research Associate Program has substantial federal agreements for aquatic monitoring on public lands throughout the West. The Center would be a welcomed collaborator in supporting the training and oversight of these monitoring initiatives sited across seven western states. The Center's expertise will provide guidance in not only improving the capture and delivery of monitoring data, but also serve as an advocate for such inventorying, monitoring and

assessment programs, all of which are critical to informing natural resource policy development, especially as water resources remain over allocated. Indeed, commercial and residential development within the Lake Tahoe Basin, and the expansion of mining exploration and large-scale renewable energy operations throughout the Great Basin, increases the amount of impermeable surfaces which limit natural percolation of water and nutrients into the ground before reaching ground water. As run-off rates from faster snowmelt increase, the marginal productivity and effectiveness of erosion control management actions tend to decrease. The implications of such trends are made clear through such landscape-scale aquatic monitoring projects, and our findings will be made more effective, and reach broader audiences, through the utilization of the resources made available by the Global Water Center.

Please feel free to contact me directly regarding our endorsement of the proposed Center. The Institute, as well as our agency partners, will benefit greatly by your favorable consideration.

Best wishes,

/s/ Jerry Keir

Jerry Keir, Executive Director

Great Basin Institute

keir@unr.edu

775.8436.9310



United States Department of the Interior

NATIONAL PARK SERVICE
LAKE MEAD NATIONAL RECREATION AREA
601 Nevada Way
Boulder City, NV 89005



IN REPLY REFER TO:

N2219 (RMVS)
X3035

February 18, 2016

Dr. Sudeep Chandra
Associate Professor of Limnology and Conservation Ecology
College of Science, Department of Biology, University of Nevada
1664 N. Virginia Street
Reno, NV 89557

Dear Dr. Chandra:

I am pleased to provide this letter of support for the University of Nevada's faculty proposal to create the *Global Water Center: Solutions for Sustainability*, being submitted to the Nevada System of Higher Education.

The proposed *Global Water Center: Solutions for Sustainability* will provide valuable information at a continental scale that can inform management at a more local scale within the Lake Mead ecosystem in the midst of increasing pressures on the Colorado River Basin. This proposal directly supports the many partner agencies actively working to enhance adaptive management of Lake Mead National Recreation Area. Work proposed in this project is timely due to recent algal blooms and the detection of algal toxins for the first time in Lake Mead in March of 2015, and due to other impacts to Lake Mead from invasive species and drought conditions. In addition, the proposed *Global Water Center: Solutions for Sustainability* will help train the next generation of scientists. The National Park Service has a long history of supporting resource stewardship and developing a conservation ethic in young people. The location of Lake Mead National Recreation Area near several urban areas in the desert Southwest provides a unique opportunity to share resource stewardship messaging and information from the *Global Water Center* with diverse populations, including the more than 7 million visitors to the park annually.

The National Park Service is charged with managing Lake Mead to enhance the recreational potential, while preserving the natural, scientific, historic, and scenic values. In pursuit of this mission, and in cooperation with additional legislative requirements and community needs for the reservoir, we work closely with a number of partner agencies including the Bureau of Reclamation; Southern Nevada Water Authority; Nevada Department of Wildlife; Arizona Game and Fish Department; Arizona Department of Environmental Quality, Nevada Division of Environmental Protection; and the U.S. Geological Survey. This proposal builds on the active partnerships, collaborative efforts, and long-term agreements formed to address the complex and internationally significant water resource issues associated with the Colorado River Basin.

Once again, the National Park Service at Lake Mead National Recreation Area fully endorses The University of Nevada's *Global Water Center: Solutions for Sustainability*. We look forward to participating with University faculty and students on innovative research, and incorporating this work into more effective management actions.

Sincerely,

A handwritten signature in cursive script that reads "Lizette Richardson".

Lizette Richardson

Superintendent



Brian Sandoval
Governor

STATE OF NEVADA
DEPARTMENT OF WILDLIFE

1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

TONY WASLEY
Director

LIZ O'BRIEN
Deputy Director

JACK ROBB
Deputy Director

19 October 2015

RE: Proposal for University of Nevada Global Water Center

Dear Committee:

The management of water resources to the benefit of both humans and natural systems is a global and ubiquitous issue, but of a particular concern for those of us who exist in arid land regions such as Nevada and who must attempt to manage and protect wildlife and aquatic resources within the context of the many impacts and competing demands on those water resources. The need for innovative approaches and solutions to these issues is unprecedented in Nevada and throughout the American west and that need will only become greater as we face known factors such as increased climate variability, industrial and developmental demands for surface and groundwater, and impacts from invasive species.

The Nevada Department of Wildlife (NDOW) strongly supports the development of a Global Water Center within the University of Nevada and the Nevada System of Higher Education. We believe that this will provide a unique opportunity to bring together the expertise and experience both from within the University system, but also from nongovernmental organizations and other entities to focus efforts on finding strategies and solutions to these critical issues at many scales, using multi-disciplinary and integrative approaches that cannot occur at the level of individual and independent investigators. Finding solutions that are long-term and sustainable for water resource challenges is critical to the future of Nevada and the west and those benefits will extend beyond our borders at regional and global scales. Thank you for your consideration and support for this initiative and please feel free to contact me at any time regarding NDOW's support for the Center.

Sincerely

A handwritten signature in cursive script that reads "Jon C. Sjöberg".

Jon C. Sjöberg
Administrator
Fisheries Division



SUMMIT LAKE PAIUTE TRIBE
Primary Administrative Office
1001 Rock Blvd., Sparks, NV 89431-4337
(775) 827-9670 • (775) 827-9678 (Fax)
Website: www.summitlaketribe.org

SUMMIT LAKE PAIUTE COUNCIL

Chairperson: Randi DeSoto • Vice-Chairperson: Page Linton • Secretary/Treasurer: Celina Gonzalez
Council Member: Jerry L. Barr • Council Member: Delgadina Gonzalez

February 12, 2016

To whom it may concern,

The Summit Lake Paiute Tribe of northwestern Nevada is pleased to provide its support for the University of Nevada Reno (UNR) Global Water Center. The Tribe has worked collaboratively with Dr. Chandra and his colleagues to conduct research on the Tribe's unique water resources. Summit Lake is a desert terminal lake containing one of only two self-sustaining populations of lacustrine Lahontan cutthroat trout (LCT). The fishery is a very important cultural resource for the Tribe who in their native tongue is known as Agai Panina Ticutta or Summit Lake Trout Eaters. As a traditional food source, LCT composed an important part of our diet and are the focus of many gatherings held to honor the fish and to learn oral history, traditional practices, and cultural resources from elders of the Tribe. In addition to providing habitat for this important cultural food source, the Summit Lake watershed occupies a unique area of undeveloped sagebrush steepe in the northwestern Great Basin, to sustain a natural ecosystem culturally important to the Tribe to continue subsistence living, traditional and religious ceremonies, as well as provide water for drinking, recreation, wildlife habitat, and agriculture use.

In collaboration with Dr. Chandra and other UNR faculty and colleagues, the Tribe has benefited from education and outreach programs and made strides to better understand the Summit Lake ecosystem to make informed management decisions and ensure the conservation and protection of water resources to sustain biodiversity of the region and continue traditional use of water. These studies have included investigating aquatic food web dynamics, invasive species interactions, sage grouse monitoring techniques to better understand their life history, distribution, habitat and abundance, and we are currently in the process of developing a Population Viability Analysis for Lahontan cutthroat trout within the Summit Lake Basin. The understanding of water resources in desert ecosystems is crucial to ensure the survival of unique species assemblages, such as what exists at Summit Lake, when faced with climate change. The Global Water Center provides a valuable collaborative platform to aid decision makers tasked with managing water resources and their diverse uses when confronted with future uncertainties and global climate change.

Sincerely,

A handwritten signature in black ink, appearing to read "Randi DeSoto".

Randi DeSoto
Summit Lake Paiute Council Chairwoman



Mail
PO Box 5310
Stateline, NV 89449-5310

Location
128 Market Street
Stateline, NV 89449

Contact
Phone: 775-588-4547
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November 2, 2015

Nevada System of Higher Education
Board of Regents Offices
ATTN: Selection Committee
2601 Enterprise Rd., Reno, NV 89512
4300 S. Maryland Pkwy., Las Vegas, NV 89119

RE: Support for the University of Nevada, Reno's Global Water Center application

Dear Selection Committee:

The Tahoe Regional Planning Agency (TRPA) is writing to offer the Agency's firm support for the University of Nevada, Reno's Global Water Center. In the midst of unprecedented challenges to the West's water resources, it is more important than ever for scientists, management agencies, and the general public to collaborate.

Increasing pressures on water resources are driven by large-scale disturbances such as climate change, invasive species, dam development and diversions, pollution, and increasing and competing human demands. These problems cannot be solved by a single agency or organization; solutions must be data-driven and multi-faceted. Additionally, there is a pressing need to translate basic science and research into actionable policy tools accessible to a variety of stakeholders at local, regional, national, and global scales.

The University of Nevada's Global Water Center aims to meet the societal demands for creative, integrative approaches in solving complex issues related to water resources. The Center will bring together experts from diverse disciplines across the University, nongovernmental organizations, and governmental agencies – all which share the goal of solving large-scale problems related to water sustainability. The Center will accomplish this goal by providing a physical venue, organizational structure, and collaborative culture to foster scientific interaction, pursue emerging research opportunities, and engage stakeholders.

TRPA is in full support of the University of Nevada's Global Water Center and looks forward to collaborating on this important initiative going forward.

Thank you for your consideration and please don't hesitate to contact my office with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "J Marchetta", with a long horizontal flourish extending to the right.

Joanne S. Marchetta,
Executive Director



To: Board of Regents
University of Nevada Reno

RE: Support for *UNR Global Water Center*

To whom it may concern:

I am writing to share Trout Unlimited's enthusiasm and support for the Global Water Center UNR is developing under the guidance of Dr. Sudeep Chandra and other key administrators and faculty. TU is America's oldest and largest coldwater fisheries conservation organization. Our mission is to conserve, protect, and restore North America's native trout and salmon and their watersheds. Over the last five years, TU has worked in close partnership with UNR and other organizations and institutions (including California Trout, University of California Davis, the US Forest Service, The National Fish and Wildlife Foundation, and others) on a range of conservation and restoration efforts from protection of Lahontan Cutthroat trout in Nevada's terminal lakes to meadow restoration across the Sierra Nevada's and great Basin. In 2014, we formalized our collaboration with the University in a memorandum of understanding, and are currently engaged with the university on several active conservation and restoration efforts in Nevada and CA.

Our experience is that water related challenges in the western US and beyond, and the resulting pressure on human and natural systems are multidimensional and require innovative and integrative approaches to be resolved. These types of approaches and the political will to implement them can only, in our experience, be accomplished collaboratively, working across institutions, disciplines, and perspectives. For all these reasons we are thrilled about the University's intention to establish a Global Water Center.

Opportunities to advance solutions to the critical problems confronting natural systems and water availability are few and far between. We appreciate that the proposed Global Water Center will cultivate more such opportunities by providing a physical venue, organizational structure, and collaborative culture that fosters scientific interaction and multi-stakeholder engagement. We look forward to our ongoing collaboration with the University and to exploring opportunities for that collaboration to expand and diversify once the Center comes online. Please don't hesitate to contact me with any questions.

Sincerely,

Brian Johnson
California Director

Trout Unlimited: America's Leading Coldwater Fisheries Conservation Organization

California Office: 4221 Hollis Street, Emeryville, CA 94608