

Disadvantaged Communities and the Inyo-Mono IRWM Program



A study of the engagement of disadvantaged communities in Integrated Regional Water Management







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Executive Summary

Economically-disadvantaged communities (DACs) in rural, sparsely-populated areas of California face unique challenges in managing their water resources. Because these communities usually lack capital and technical resources, they may have difficulty operating and maintaining their water/wastewater system. System repairs and improvements, as well as responding to increasingly strict regulations, may be simply beyond the system's ability. In addition, these communities are now being asked to participate in Integrated Regional Water Management (IRWM) efforts around the state. Their participation in traditional ways (attending meetings, serving on working committees) may further tax the water system or may not be possible given their time and resources.

This report details a study undertaken by the Inyo-Mono IRWM Program through the support of Proposition 84 and the California Department of Water Resources. We sought to examine effective methods of reaching out to and engaging disadvantaged communities in regional water management and planning. This included identifying barriers to participation in IRWM efforts. One such barrier is the initial identification of DACs, which currently occurs using a Census-based income metric. We discovered that for rural areas with geographically-isolated communities, such as the Inyo-Mono IRWM region, Census data may either not be available at all or may be reported at a scale that does not match the community of interest, such as a water system service area. Part of this project included an examination of readily-available quantitative information that could serve as a proxy for or supplement income data.

Much of the work performed during the project consisted of conducting outreach to DACs in the Inyo-Mono IRWM region, some of which are Native American Indian tribes. We found that oneon-one outreach meetings were more productive and ultimately more successful for the IRWM process than open-ended public meetings. A main component of successful outreach is continued communication and follow-up on agreed-upon tasks. This ongoing relationshipbuilding is perhaps more crucial to DAC engagement than the initial outreach efforts.

Through early work with DACs and small water systems, we discovered two broad categories of challenges: assessing need and building capacity. These became two main focal areas of the DAC project. Needs assessments were performed with individual water systems through working with the California Rural Water Association and by distributing surveys asking about water system capacity, issues of concern, and project priorities. Using the information from the needs assessments, we made available a set of training opportunities aimed at building the technical, managerial, and financial capacity of DAC and small water systems.

The last chapter of this report presents a set of recommendations directed at the California legislature, state water agencies, local agencies, IRWM groups, and even DACs themselves, that we hope will improve the ability of DACs and their water systems to become more self-sufficient and sustainable with respect to water resources in the coming decades.

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Chapter 1 : Introduction to Disadvantaged Communities

Through laws passed by the legislature and voters over the past decade, Californians have acknowledged that not all of the state's residents have reliable access to safe drinking water. As an example, millions of Californians throughout the state continue to depend on contaminated groundwater as their primary source of domestic water (California State Water Resources Control Board, 2013). As one way to tackle the problem, state and local agencies have been assisting economically-disadvantaged communities to address their water needs since the passage of Proposition 50 in 2002. The Integrated Regional Water Management (IRWM) Program of the Department of Water Resources (DWR) gives specific attention to disadvantaged communities (DACs) in a variety of ways, including the project detailed in this report. Furthermore, with the enactment of California Assembly Bill 685 in 2012, state agencies are now obligated to consider the human right to safe, clean, affordable, and accessible water for all California communities in their policies, budgets, and programs.

This report presents the work that was completed by the Inyo-Mono Integrated Regional Management Program focusing on how to engage, support, and build regional capacity of economically disadvantaged communities to participate in regional water planning and meet their water resources needs.



Disadvantaged Communities in DWR IRWM Program

The State of California adopted a definition of "disadvantaged community" through passage of Proposition 50, the Water Security, Clean Drinking Water, Coastal, and Beach Protection Act of 2002. This measure added Section 79505.5(a) to the California Water Code and defines disadvantaged community as "a community with an annual median household income that is less than 80 percent of the statewide annual median household income". Section 75005(g) of Proposition 84, The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006, maintained that definition and added the term "severely disadvantaged community" as one with an annual median household income that is less than 60 percent of the statewide annual median household income that is less than 60 percent of the statewide annual median household income. Senate Bill 244, enacted in 2011, requires local agencies to begin identifying and considering DACs in their planning documents, particularly in relation to infrastructure, and maintains the same definition of DAC. It is worth noting, however, that some other State agencies use different definitions for disadvantaged community, as will be discussed later in the paper.

The California Department of Water Resources, through its Integrated Regional Water Management Program, has provided a "program preference" for projects that "address critical water supply or water quality needs of disadvantaged communities" (California Department of Water Resources, 2012) and has altered some requirements for DACs, such as waiving a 25 percent cost-share match requirement. This program preference indicates the State's emphasis on offering funding assistance especially to DACs and their water suppliers through the IRWM Program. In addition, the California legislature mandated that 10% of Prop. 84 IRWM funds be directed to water projects in DACs. DWR has also made available to DACs resources, such as facilitation and engineering support, to help them overcome obstacles to participating fully in IRWM and competing for funding.

Based on recommendations in the California Water Plan Update 2009, the 2012 IRWM Guidelines establish as a statewide priority projects that:

- Increase the participation of small and disadvantaged communities in the IRWM process;
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations;
- Contain projects that address safe drinking water and wastewater treatment needs of DACs;
- Address critical water supply or water quality needs of California Native American Tribes.

These priorities show the increased attention to DACs and tribes by state water agencies and use this emphasis to encourage regional and local water managers and planners to develop similar attention to DACs and tribes.

The IRWM Program made \$2.5 million in grants available to IRWM regions throughout the state to study and provide insight into disadvantaged community involvement in the IRWM process. These grants were non-competitive; the funding was essentially available on a first-come, first-served basis. Each grant could provide up to \$500,000 in funding. In designing the overall DAC grant opportunity, the DWR-IRWM Program recognized that there is a wide variety of DACs within the diverse physical and cultural geography of California. Disadvantaged communities are found from the mountains (e.g., Sierra Nevada) to the lowlands (e.g., Central Valley), in areas of abundant precipitation (e.g., Northern California) as well as in deserts (e.g., Mojave Desert), in industrial regions (e.g., Los Angeles) and farmland (e.g., Salinas Valley), and in densely-populated cities (southern California) as well as in the relatively undeveloped parts of the state (eastern California).



The Inyo-Mono IRWM Program was one of the regions selected for a DAC Pilot Project grant. The geographical characteristics of the Inyo-Mono IRWM Region make it suitable to represent sparsely-populated rural areas, Native American tribal areas, mountains and deserts, and headwaters of rivers that supply water for local needs as well as distant cities and farmlands. Representing other physical settings and patterns of settlement, four other IRWM regions were initially awarded this grant funding: North Coast, Greater Los Angeles, Coachella Valley, and Upper Kings River. More recently, the Imperial Valley and Santa Cruz IRWM regions were awarded some DAC grant funding for similar types of projects.

A main emphasis of the DAC grant was to conduct outreach to DACs throughout the region to learn more about why DACs do or do not participate in the IRWM planning process. Through this process, it was also expected that we would learn more about specific water issues in regional DACs and begin to address them through the IRWM process. Lessons learned from DAC involvement in the Inyo-Mono region may help other IRWM regions with similar geographies and demographics improve their outreach to and participation of DACs in regional water management and planning. We hope that the findings reported here also help DWR and other State water agencies better understand the nature and needs of DACs in rural regions in order to provide them the appropriate assistance to address their needs.

Inyo-Mono IRWM Program DAC Pilot Project

The Inyo-Mono IRWM Program developed in early 2008 in response to California voterapproved Proposition 84 funding availability. A handful of water-related stakeholders in eastern California came together to begin communicating and collaborating on water issues in the region. The Inyo-Mono Regional Water Management Group (RWMG) is the decision-making body for the Program and is comprised of several dozen stakeholders that have met more than 50 times since 2008. These meetings, along with other efforts of the RWMG, have resulted in more than \$2.2 million in Prop. 84 IRWM funds being awarded to the region, including implementation of 10 on-the-ground projects related to water supply, water quality, and ecosystem stewardship.

The IRWM effort has attracted stakeholders of every kind, both within and outside of the region,

from federal, state, and local government agencies to conservation organizations, small water systems, Native American tribes, and citizens' groups. The governance of the Program is such that each signatory to a memorandum of understanding is a decision-maker and has an equal seat at the table to everyone else. This structure necessitated that all types of stakeholders in the region be invited to participate in the IRWM process, and thus, outreach became a cornerstone of the Program. Early on, we also recognized that a significant number of communities were considered economically disadvantaged and warranted special attention in order to ensure they have access to the resources they need.

The Inyo-Mono IRWM Program first applied for one of the DAC pilot project grants in May 2010 and received word shortly thereafter that the project would be funded, although funding was not made available until mid-2011. The original Inyo-Mono DAC grant application requested just over \$371,000, and full funding was awarded. Broadly, the focus of the grant's tasks was to learn more about DAC-specific water-related needs in the Inyo-Mono IRWM region, investigate DAC involvement in the IRWM process, and provide recommendations to DWR based on our work. During the course of working with stakeholders within the IRWM process, we also observed a significant need for building capacity in DACs, tribes, and small water systems. As the pilot project progressed, it became obvious that an additional goal of the project had to be assisting DACs to become more self-sufficient with respect to meeting their water management needs. For the purposes of this project, we define self-sufficiency as the ability to supply one's own needs without external assistance.

The original work plan (Appendix A) included six main categories of tasks:

Task 1: Identify DACs in the planning region and develop an outreach strategy
Task 2: Conduct outreach and stakeholder meetings
Task 3: Assess needs of DACs in the region
Task 4: Build capacity of DACs in the region
Task 5: Synthesize results and develop reports
Task 6: Disseminate project findings

During a DAC outreach training held early in the grant work, participants developed ideas about how to influence DAC-related legislation, funding, and policy and created two additional tasks for the DAC grant (Task 7: Develop alternative methods to define DACs; and Task 8: Production of documentary film). Because the Inyo-Mono region had not requested the full \$500,000 in available funding, Program Office staff inquired to DWR whether additional funding could be granted to the region. Eventually this funding was approved, and the total grant amount became \$496,000.

The vast majority of the DAC grant work was performed by the Inyo-Mono IRWM Program Office, which consists of several individuals with special expertise related to the grant (such as outreach, GIS, climate change, grant writing) who are contractors through California Trout, the grant recipient. In addition to the Program Office staff, a handful of vendors was engaged to provide specific services, such as water system needs assessments or trainings (see Chapter

4). Program Office staff sought advice and guidance from the Inyo-Mono RWMG and the Inyo-Mono Administrative Committee (a subset of the RWMG that acts as an advisory board). The Program Office also worked closely with DWR-IRWM staff to discuss the progress of the project, additional work, and changes to the grant agreement.

Overview of Report

In this report, we detail the work performed through the DAC grant project and provide recommendations to various agencies and entities based on our experience. In the next chapter, we provide some background on the geography, history, people, water issues, and economic development of rural regions in general and the Inyo-Mono IRWM region in particular. In Chapter 3, we start by presenting a list of the currently-identified DACs in the Inyo-Mono region, examine the current definition of a DAC and some alternative ways of characterizing disadvantage, and discuss the outreach that took place through the course of the project. In Chapter 4, we present the work we undertook to identify the water-related needs of DACs (and their water systems) in the region and our efforts to start to build capacity and enhance self-sufficiency of these communities. Chapter 5 provides some of the bigger-picture concepts that emerged as the work progressed, along with lessons learned. Finally, Chapter 6 details a set of recommendations directed to DWR, other IRWM regions, other state water agencies, and the California legislature regarding the involvement of disadvantaged communities in the future of California IRWM. The appendices include documents referred to in the text of the chapters.

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Chapter 2: Water issues in rural DACs

Rural, headwater regions of California can broadly be classified as having sparse population centers, often located significant distances from one another, and often with limited and/or antiquated water/wastewater infrastructure. Mountain/headwater regions are of paramount importance to water throughout the state of California. Sierra Nevada watersheds provide as much as 75% of California's developed freshwater, which is also the single greatest good in terms of economic value from these regions. Yet the Sierra Nevada is comprised of unique characteristics, including a disproportionate number of DACs. These regions face the following challenges when it comes to engaging DACs:

- High proportion of remote communities that have a higher cost, per capita, to maintain basic services;
- Expansive geographic regions make it difficult to do in-person outreach and to promote meeting participation;
- Per capita funding distributions fail to take into account the higher per capita costs of outreach and engagement;
- Sierra communities are underfunded and underserved money continues to be allocated to urban regions;
- The Mountains have distinct water, tribal, and DAC issues and contexts from the rest of the state (explored further in Chapter 4).

Availability of safe drinking water in economically-disadvantaged communities has long been recognized as a significant public health issue (California Department of Water Resources, 2014). Nationally, there has been an average of 10 to 15 incidents of disease outbreaks per year related to public drinking water systems (Friedman-Huffman and Rose, 1999). The fraction of these incidents occurring in small disadvantaged communities is unknown, but it is likely to be proportionally higher than in communities with adequate funds for proper water system maintenance. For example, water samples from small systems have been found to violate drinking water quality standards 30 times more often than samples from all U.S. water systems [violations of Maximum Contaminant Levels per 1,000 people were 0.8 for systems serving 25-500 people and 0.025 averaged for all systems] (Cadmus Group, 1999).

Serious efforts to address this problem can be traced to the 1996 amendments to the federal Safe Drinking Water Act, which was the last major update of federal law regarding drinking water. Implementation of the 1996 law left both definition of "disadvantaged community" and details of providing assistance to these communities up to individual states. California has been working to improve drinking water supplies to disadvantaged communities in a variety of ways. Voter approval of Propositions 50 and 84 in 2002 and 2006, respectively, provided significant financial resources that, in part, could address drinking water safety and supply in disadvantaged communities. More recently in 2012, Governor Brown signed in to law the Human Right to Water Act (AB-685) which requires state agencies to consider the rights of all Californians to have safe, reliable, and affordable water.

Drinking Water Supply for Small Communities

The federal Safe Drinking Water Act, enacted in 1974 and amended in 1986, 1996, and 2005, directed the U.S. Environmental Protection Agency to establish drinking water regulations and standards for the entire country for the purpose of protecting public health. Each state, in turn, implements and enforces the regulations. In California, the Department of Public Health previously oversaw regulation enforcement for certain local systems and delegated responsibility to local "primacy agencies", which are often country departments of public health or environmental health, to oversee other local systems. These responsibilities are currently being transferred to the State Water Resources Control Board.



Under the Safe Drinking Water Act and amendments, *community water systems* have been defined as those serving at least 25 people or 15 service connections year-round. Size categories have also been defined as *very small*, serving between 25 and 500 people, and *small*, serving between 501 and 3,300 people (U.S. Environmental Protection Agency, 1999). As of 1995, about 61 percent of the approximately 54,000 community water systems in the U.S. were classified as very small, and another 25 percent were in the small category (U.S. Environmental

Protection Agency, 1999). In 2010, 77% of community water systems were categorized as small or very small, serving 30% of those who get their water from a community water system (U.S. EPA, 2010, <u>http://water.epa.gov/infrastructure/drinkingwater/pws/factoids.cfm</u>).

Development of some rural water systems in the United States has been similar to those in developing countries (Stottlemeyer, 1999). After World War Two, thousands of small water systems were built across rural America, largely through programs of the U.S. Department of Agriculture and other federal agencies. The initial goal of these programs was to provide water to households. Over subsequent decades, the safety and quality of the supplied water has received greater attention largely as a result of the Safe Drinking Water Act and amendments (e.g., Stottlemeyer, 1999). However, greater water quality regulation has also placed a burden on many of these systems, as these new rules are often imposed upon water systems without any attendant funding.

In addition to community water systems, a common source of water for small (and rural) communities in California is individual wells. For many, groundwater provides an adequate or abundant supply that meets federal and state compliance requirements. Yet pumping groundwater comes at a price. During the last several decades, over-exploitation of groundwater has resulted in the lowering of water tables, a reduction in supplies and quality,

Native American communities in the Inyo-Mono region

There tribal are several communities located throughout the Inyo-Mono Region. These communities are the remnants of a widespread Native American population that occupied much of the region prior to Euro-American contact in the mid-1800s. The following is a brief description of tribes and reservations in the region. listed from north to south:

The Washoe/Paiute Tribe of Antelope Valley does not currently have federally recognized status but operates a medical clinic and housing just north of Walker.

The Bridgeport Indian Colony has a federal reservation of 40 acres on the east side of Bridgeport. Although there are more than 100 tribal members enrolled, only about 20 live on the Colony.

Some members of the Mono Lake Paiutes (also known as Kutzadika'a or Kucadikadi) live in and near Lee Vining and are seeking federal recognition. Many members are currently enrolled in federally recognized Paiute, Washoe, Yokuts, Miwok, and Western Mono tribes. and in some cases, the need for new or deeper wells. Small water systems located near agricultural or industrial pumpers may be challenged to maintain system operability and water quality when affected by neighboring pumpers. Additionally, either through naturally occurring or anthropogenic sources, groundwater quality can be out of compliance with current standards. These issues are particularly acute in rural, disadvantaged areas.

Within the context of this project, the lack of adequate water supplies in rural, sparsely-populated areas is generally associated with a lack of financial resources. Provision of high-quality water to individual households is a costly enterprise. Many economically-disadvantaged communities simply cannot afford to construct and maintain water systems. Community size is a compounding influence. Many of the water systems serving communities of less than a few thousand people are at the losing end of "economies of scale" (costs per unit tend to decrease with increased number of units). The "fixed" costs of a system - the fundamental construction and operation costs - do not change much as the amount of water provided increases. When the large costs of the wells, dams, tanks, canals, pipelines, treatment equipment, and other infrastructure cannot be spread among many thousands of customers, the per-capita share of the system can be quite high. A study in the 1990s found that infrastructure expenses per household were more than 2.7 times greater in systems supplying less than 3,300 people than in those supplying more than 3,300 [\$3,300 vs. \$1,200 over a twenty-year period] (Cadmus Group, 1999). Where economic opportunities and community size are both small, as is often the case in rural parts of California, reliable supply of safe drinking water can be unaffordable.

Another challenge common to all water systems, but especially burdensome for small, disadvantaged systems, is the maintenance of water distribution system infrastructure. In older systems, water mains and pipes, storage tanks, and wells may be up to 100 years old. In our experience in working with small rural systems, few water purveyors have capital improvement programs in place to replace aging infrastructure. Thus, a dilemma exists for these small systems between updating infrastructure or complying with water quality standards – often, they cannot do both. Many

Native American communities in the Inyo-Mono region

The Utu Utu Gwaitu Paiute Tribe has a 467-acre federal reservation near Benton. The reservation was established in 1915 and currently has about 50 resident members of the tribe.

The Bishop Paiute Tribe has more than 2,000 enrolled members and is the fifth largest Native American tribe in California. The reservation was established in 1939 through a land exchange between the U.S. Department of the Interior and the City of Los Angeles and has 877 acres adjacent to the town of About 1,500 tribal Bishop. members live the on reservation. It is a federallyrecognized tribe.

The Big Pine Band of Owens Valley Paiute Shoshone Indians is a federally recognized tribe. The tribe has more than 450 enrolled members. The Big Pine Reservation covers 279 acres adjacent to the town of Big Pine and was established in 1939 through a land exchange between the U.S. Department of the Interior and the City of Los Angeles.

The Fort Independence Indian Community of Paiute Indians is a federally recognized tribe. Its Fort Independence Reservation has an area of about 350 acres and was established in 1915. small water systems have a minimal customer base that is insufficient to meet basic technical, financial, and managerial (TMF) needs to maintain the system. Limited economic opportunities, particularly in tribal communities, further compound the difficulties of building and operating residential water delivery systems to a standard that most Californians take for granted.

Inyo-Mono IRWM Region: Geography and Economic Development

Located east of the Sierra Nevada, the Inyo-Mono IRWM region is isolated from the population, economic activity, politics, and even precipitation of much of California. The region is characterized by very low population density and vast open spaces compared to most of the state. At 17, 259 square miles, the Inyo-Mono region is the second-largest of the IRWM planning regions, but only has about four people per square mile.

Except for the steep mountain front immediately east of the Sierra Nevada crest, the region is arid, with portions classified as hyper-arid. However, snowmelt runoff from the Sierra Nevada flows into some parts of the region that see little direct precipitation. Water from the two largest rivers of the region is largely exported to Nevada and southern California, as is some pumped groundwater. Consequently, limited water supplies as well as a low proportion of private land ownership have constrained local land use and human settlement.

The towns and communities of the region are located either where water was available or where some other exploitable resource outweighed concerns about water supply. While a few communities are served by surface water, much of the local water resources come from groundwater. In general, water quality is quite good, although granitic bedrock produces elevated levels of arsenic and uranium, and a few water sources contain remnant pollution from mining operations.

Native Americans lived throughout the eastern California region wherever climate, resources, and water were favorable. A few Euro-American explorers and emigrants passed through the region during the first half of the 19th

Native American communities in the Inyo-Mono region

Paiute-Shoshone The Indians of the Lone Pine Community is a federally recognized tribe with about 1,400 enrolled members. About 350 tribal members live on the Lone Pine Indian Reservation that has an area of 237 acres. The reservation was established in 1939 through a land exchange between the U.S. Department of the Interior and the City of Los Angeles.

The Timbisha Shoshone Tribe was formally recognized in 1982, at which time the tribe's reservation, the Death Valley Indian Community near Furnace Creek. was established. During the preceding half-century, the tribe had a difficult relationship with the administration of Death Vallev National Park. The reservation covered only 40 acres in 1990, but the federal Timbisha Shoshone Homeland Act of 2000 7,500 returned acres of ancestral lands to the tribe.

A few of the tribes in the region have collaborated on a long-term effort to secure water rights. The Owens Valley Indian Water Commission is a consortium of the Bishop, Big Pine, and Lone Pine Paiute Tribes that is involved with water rights, and environmental water protection, and education.

century, but settlement (and consequent displacement of the native peoples) did not begin until the 1850s. Mineral prospecting and mining throughout the eastern Sierra Nevada and northern Mojave Desert led to the establishment of small communities near the mines. Most of these settlements were abandoned when the ore played out. Relatively sustainable communities were developed near good water sources by farmers, ranchers, and merchants who supplied the mining camps. The great majority of Inyo and Mono counties remained in public ownership under the administration of the USDA-Forest Service, Bureau of Land Management, National Park Service, California State Lands Commission, or U.S. Navy or was acquired by the City of Los Angeles in the early 1900s.

The very small proportion of private land within the region (1-8% in each County) has limited population growth, development, and changes in land use. Furthermore, a sizeable portion of the developable water resources was exported to Los Angeles starting in 1913. Consequently, communities (other than Ridgecrest) in the region have remained small and have not followed the typical pattern of growth by successive subdivision of most towns and cities in California. The Region Description chapter of the Inyo-Mono IRWM Plan summarizes aspects of the history and development of the region that are relevant to water resources.

Today, only about 1.7 percent of Inyo County land is in private ownership, and about 6% of Mono County is private land. Outdoor recreation on public lands by visitors from outside the region drives the local economies. Recreation is a major land use and dominant economic force throughout the Inyo-Mono IRWM planning area because of the scenic beauty and high proportion of public land. The Invo National Forest receives about ten million visitor-days of use Recreation is also popular on lands of the per year. Humboldt-Toiyabe National Forest, Bureau of Land Management, Death Valley National Park, and Los Angeles Department of Water and Power. Agriculture is the dominant land use on private property in the area. About 65,000 acres of Mono County and 20,000 acres of Inyo County (2012 figures) are under irrigation for alfalfa,

miscellaneous hay, and irrigated pasture, primarily on private land and land owned by the City of Los Angeles. Agricultural activities also occur on public land in the planning area via grazing leases. Land is dedicated to military uses at the Naval Air Weapons Station at China Lake and Mountain Warfare Training Center east of Sonora Pass.

Compared to most of California, the Invo-Mono IRWM region is very sparsely populated. Mono County has a population density of about four people per square mile, and Inyo County has only two people per square mile. The City of Ridgecrest, with a population of 27,616 (2010 Census) within the small part of Kern County that is in the Inyo-Mono IRWM region, constitutes almost half of the total population of the region. Depending on one's criteria, there are about 20 distinct communities of more than 50 people in each of Inyo and Mono counties. People older than 64 constitute 20 percent or more of the population of the larger communities of the Owens Valley (versus 11 percent of California's population), which suggests that the area is favored by retirees, and a significant proportion of the valley's total income is from pensions, social security, rents, and other investment and retirement income. On the average, wages tend to be about 10 percent higher in Inyo County than in Mono County, but per capita income (including non-labor income) is about 10 percent higher in Mono County than in Inyo County. Other inhabitants include full-time recreationalists (such as rock climbers), seasonal workers, long-time locals, and those that have made a deliberate choice to settle in a remote region. There is also a strong seasonal trend to both permanent and temporary population, which is addressed in Chapter 6.

In the Inyo-Mono region, the two principal counties have experienced very different socioeconomic trends in the past few decades (see Table 2-1; data and information from Headwaters Economics, 2014a and 2014b; County of Inyo, 2010).

Indicator	Inyo County	Mono County	U.S.
2010 Population	18,500	14,200	
1970-2011 population growth	18%	246%	53%
1970-2011 total personal income growth	92 %	487%	
2009 Median Household Income	\$44,952 (74% of CA MHI)	\$51,970 (86% of CA MHI)	

Table 2-1: Socioeconomic trends of the Inyo-Mono Region

It is recognized that although all of the Native American tribes are technically designated as being economically disadvantaged according to MHI data, they are also unique in status, governance, and should be considered accordingly. The box inset on the preceding pages provides a description of federally and non-federally recognized tribes within the Inyo-Mono region.

Unlike several of the other pilot-project regions, the Inyo-Mono IRWM region does not have distinct disadvantaged communities that are largely composed of people of Hispanic ethnicity. Although about one-quarter and one-fifth of Mono and Inyo counties' population is currently of Hispanic origin, respectively, these fractions are the result of relatively recent demographic change (Table 2-2).

Year	Mono County	Inyo County
1980	5%	6 %
1990	11%	8%
2000	18%	13%
2010	27%	19%

Table 2-2: Percent Hispanic population in Inyo and Mono Counties over time

Most of the Hispanic population of Mono County lives in Mammoth Lakes, Bridgeport, and Lee Vining. Most of the Hispanic population of Inyo County lives in Bishop and Lone Pine. With the exception of Bridgeport, these communities have relatively good water supply and are relatively prosperous overall (Bridgeport has arsenic levels exceeding the new standard and qualifies as a DAC). However, the categories of DAC delineated in California Senate Bill 244 would identify some of the largely-Hispanic pockets of these communities as DACs.

Although we have not performed an economic analysis of the Inyo-Mono region comparing incomes to other parts of California, we do not believe that incomes for similar occupations are substantially lower in eastern California than for the state as a whole. Much of the discrepancy in median household income between communities in the Inyo-Mono region and the state-wide number can probably be explained by the near-absence of high-salary occupations in the region. In general, rural areas simply lack entire sectors of the economy that tend to support jobs with well-above-average salaries that are commonly found in cities. The Inyo-Mono region has few jobs that pay more than \$100,000 per year (or even \$50,000 per year). The relative lack of these upper-tier occupations results in relatively low MHI figures for many communities in the region compared to California overall. In addition, there are several communities that have minimal economic opportunities of any kind and consequently have very low household incomes.

Disadvantaged Communities in the Sierra Nevada

In addition to assessing the water-related attributes of economically-disadvantaged communities within the Inyo-Mono IRWM planning region, this pilot project is intended to be representative (or at least indicative) of other rural communities in the Sierra Nevada, which is the primary water source for much of California. Although there are significant differences in the socioeconomic characteristics of counties and towns throughout the Sierra Nevada (e.g., Doak and Kusel, 1996; Stewart, 1996), the mountain communities share many economic attributes, such as historical development, declining dependence on local natural resources (timber,

mining), limited private land base, low population and population density, importance of tourism, relative abundance of water resources that have primary value downstream, and water rights held by entities outside the region. There are great contrasts between "typical" communities of the Sierra Nevada and towns and cities of the Central Valley, Bay Area, and Southern California.

The economic assessment of the Sierra Nevada during the Sierra Nevada Ecosystem Project of the mid-1990s found that products and services directly tied to natural resources account for about one-quarter of the jobs in the region (Stewart, 1996). Although equivalent data are not available for the period since the mid-1990s, a sharp decline in timber production on national forest land, increases in sawmill productivity, and impacts from the recession have greatly

reduced the number of traditional timber-related jobs in the Sierra Nevada (Charnley and Long, 2013). The total number of jobs and size of local economies had more than doubled over that same period, but the importance of jobs requiring commuting out of the Sierra Nevada to urban areas in the foothills and Central Valley had increased significantly by 1996 (Stewart, 1996) and has probably continued to increase since then.



Nevertheless, poverty remains widespread among Sierra Nevada communities, with substantial differences in income among communities (Doak and Kusel, 1996). A recent detailed study of socioeconomic conditions in Mariposa County (Moote and Kusel, 2010) may be broadly indicative of the economic situation of many counties in the Sierra Nevada, or at least on the western slope. Like many rural counties with a high proportion of public land, Mariposa County has a relatively low diversity of types of business and employment, with more than 80 percent of jobs in government or tourism. Median household income in Mariposa County is below the 80 percent of statewide MHI threshold. However, the unemployment rate has been less than the statewide average in recent years. The report noted substantial differences in many indicators between different parts of the county (Moote and Kusel, 2010). Therefore, although there may be broad similarities among rural communities across the Sierra Nevada, we must also be careful to recognize local attributes and situations that distinguish each community.

Chapter 3 : Disadvantaged Community Outreach & Engagement

Identifying and describing DACs

The first step in our investigation into reaching out to and engaging disadvantaged communities in the Inyo-Mono IRWM region was to identify the existing DACs in the region, as described in the previous chapter. While working with Census and ACS data, however, we encountered several problems with the data specific to rural, isolated, and/or tribal communities that prevented us from developing a comprehensive and accurate DAC list for the Inyo-Mono region. These challenges, and our attempts to develop solutions to address them, are described below.

Current DACs in the Inyo-Mono region

The original list of DACs in the Inyo-Mono planning region was based on median household income (MHI) data from the 2000 Census. One of the first tasks in the DAC grant was to update this list based on 2010 Census data. After waiting more than a year for these data to become available, it was discovered that the 2010 Census did not collect MHI data at the community level. Instead, it was suggested by DWR to use 5-year American Community Survey (ACS) estimates, the most recent of which (as of 2011) are composites of data collected between 2006 and 2010. More information on ACS estimates can be found at this website: http://www.census.gov/acs/www/. Community-specific income surveys, performed by an outside entity such as the Rural Communities Assistance Corporation, are also considered valid in determining DAC status.

According to the 2006-2010 ACS data, a community is a DAC in California if its annual MHI is less than \$48,706 (which is 80% of the California statewide MHI of \$60,883). It is worth noting that the overall MHI for the entirety of each of Inyo and Kern Counties falls below the DAC income threshold.

In conjunction with the recommendation to use ACS estimates, DWR built an online interactive map to help users find DACs in their IRWM regions (http://www.water.ca.gov/irwm/grants/resourceslinks.cfm). The mapping tool only recognizes non-tribal DACs. MHI estimates for Native American communities in the region were found directly from the ACS website. Using the five-year ACS estimates, we developed an updated list of DACs within the Inyo-Mono planning region (Table 3-1; Figure 3-1). Because of the data challenges described in the next section, it is difficult to precisely label every community as DAC or non-DAC. However, of approximately 74 population centers in the Inyo-Mono region, about 30 are disadvantaged according to the MHI criterion. This number represents about 40% of the population of the IRWM region (~25,500 out of 65,000).

[able 3-1: Disadvantaged communitie	s of the Inyo-Mono IRWA	Λ planning region
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Community	Population	Annual Median Household Income
Inyo County	18,434	\$44,808
Big Pine Paiute Reservation of the Owens Valley	262	\$43,214
Bishop	3,826	\$37,005
Bishop Paiute Tribe	1,828	\$46,384
Darwin CDP	30	\$30,893
Dixon Lane-Meadow Creek CDP	2,660	\$48,542
Fort Independence Tribe	81	\$30,417
Furnace Creek CDP	64	\$27,813
Homewood Canyon CDP	109	\$14,706
Independence	551	\$47,883
Keeler CDP	27	\$44,500
Lone Pine CDP	2,309	\$40,176
Lone Pine Paiute-Shoshone Reservation	148	\$37,188
Pearsonville CDP	5	Not available ⁵
Shoshone CDP	33	\$28,750
Tecopa CDP	101	\$21,806
Timbisha-Shoshone Reservation	32	\$23,063
Valley Wells CDP	Not available	Not available
Wilkerson CDP	563	\$44,356
Total: 18 communities	12,629 people	
Mono County	13,905	\$55,087
Aspen Springs CDP ⁶	Not available	Not available
Benton CDP	289	\$40,119
Benton Paiute Reservation	75 ¹	\$9,938 ¹
Bridgeport Indian Colony	35 ²	\$10,625
McGee Creek CDP	29	Not available
Topaz CDP ⁷	Not available	Not available
Walker River Reservation	508	\$25,227
Walker CDP ⁷	677	\$30,682
Woodfords Community of the Washoe Tribe ⁴	139	\$25,417
Iotal: 9 communities	1,752 people	
		A 47 AAA
Kern County	815,693	\$47,089
	1,553	\$35,102
	1,6/6	\$31,925
Total: 2 communities	3,229 people	
San Pornardino County	2 005 297	CEE OAE
Social Serial and County	2,003,28/	\$35,043 \$35,147
	2,000	955,147 Not available
Total: 2 communities	2 105 people	

- ¹: From 2009 5-year ACS
- ²: From 2010 Dicennial Census
- ³: Consists of the communities of Argus, Trona, Pioneer Point, and Searles Valley, CA. For our purposes, we consider only the Searles Valley CDP data, since they encompass Trona.
- ⁴: Woodfords Community is the sole branch of the Washoe Tribe located in CA
- ⁵: Communities with MHI listed as "Not available" are listed as DACs based on their DAC designation using DWR's DAC mapping tool: <u>http://www.water.ca.gov/irwm/grants/resourceslinks.cfm</u>
- ⁶: Aspen Springs and McGee Creek are considered DACs by DWR's mapping tool despite lack of ACS data; anecdotal evidence suggests that neither community is a DAC.
- ⁷: Topaz and Walker (and Coleville) constitute the Antelope Valley, which was its own CDP in 2000 census data.¹





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Challenges of current definition

Absence of data

The first challenge in identifying DACs solely by income criteria is related to the availability of Census-derived data for the Inyo-Mono region. Census and ACS data related to population and/or income simply do not exist for certain communities in the Inyo-Mono region, even those that are recognized by the Census as Census Designated Places (CDP), such as McGee Creek and Aspen Springs. Yet DWR considers both these CDPs as DACs in its mapping tool, despite the lack of data. Furthermore, we presume that neither of these communities is a DAC based on our local knowledge of the large homes and other socioeconomic characteristics of both places. The absence of data for these communities further affects subsequent tools based on Census data, such as DWR's DAC mapping tool (Figure 3-2) and Cal EPA's CalEnviroScreen 2.0 (discussed later in the chapter), both of which aim to identify disadvantage in local communities.





Population centers not recognized by Census

Another issue is that not all population centers in the Inyo-Mono region are recognized by the Census. Of the approximately 74 population centers in the Inyo-Mono region that have been identified as communities, 27 are not recognized by the Census/ACS. Therefore, these communities are not able to participate in DAC-focused programs that use the MHI definition (if indeed they are DACs) simply because the Census does not recognize them as communities. One option of filling in missing population and income data is to have community-specific

income surveys performed, though these can be time-intensive and expensive.

Limitations of Census geographies

A third challenge with using Census-based data is that these data are by definition only available for Census-based geographies, such as Census-Designated Places, Census Blocks, and Census Tracts. (Zip code regions are too big for a rural region such as the Inyo-Mono, where they include many distinct communities and/or CDPs.) Yet there are several instances in which the "community of interest" is different from the Census-based geography. For the purposes of this work, we define "community of interest" as "*a group of at least 25 people or 10 residences living in a common geographic area that share common water-related infrastructure, resources and/or challenges*". An example of the difference between a Census-defined community and a "community of interest" is the Census-Designated Place of Big Pine, in Inyo County, vs. the Big Pine Community Services District (CSD) service area (Figure 3-3). If the CSD wanted to know whether its service area is a DAC to participate in certain programs – grant funding, technical assistance, and the like – it would need to have a community-specific income survey performed. Figures 3-4, 3-5, and 3-6 further illustrate the differences among the three areas within Big Pine.



Figure 3-3: Mismatch of community designations in Big Pine, CA

An extension of this same concept is the observation that several very demographically-different

communities may be lumped into the same Census geography. As one example, Lone Pine Census-Designated Place includes the town of Lone Pine, the reservation of the Lone Pine Paiute-Shoshone Tribe. and the outlying population center of Alabama Hills. These three communities are quite different in their demographic composition and economic status, but the Lone Pine CDP lumps all three population centers as the same community. Furthermore. some of the communities obscured by a larger Census geography may indeed be DACs but are not defined as separate communities, so no data or assistance are available for them. Upon further investigating how Census geographies are created, it was discovered that the Census Bureau has a Participant Statistical Areas Program, whereby counties can help to define Census geographies within their boundaries. Participation in this program could potentially relieve some of the challenges in designating communities as disadvantaged. This program is discussed further in Chapter 6 (Recommendations).

Income criterion is limiting

In the course of working with DAC stakeholders throughout the life of the IRWM Program, we came to see the sole use of income as the criterion by which to identify DACs as limiting. We surmised that other characteristics of communities might indicate their relative disadvantage, such as access to resources, condition of infrastructure, or other demographic variables such as level of education or marital status of parents. The following section describes an investigation into these characteristics.

Supplemental metrics for identifying DACs: methods and results

Because the Census can misrepresent, or simply exclude, the geographic boundaries, and thus the actual number and demographics, of communities in the Invo-Mono region, project staff began to think about developing alternatives to supplement the current Census-based definition of DAC. We aimed to capture other features that characterize the disadvantage in a community. Are there physical characteristics of disadvantage, such as home size, types of cars owned, and/or distance from essential services? As we conducted outreach in various communities, we began to record observations of physical characteristics of these communities. Based on this work, we wanted to create a rapid assessment-type methodology that would allow us to make observations right in a community and get an idea of its DAC status.

Big Pine, CA



Figure 3-4: Big Pine Paiute Tribe



Figure 3-5: Big Pine CSD service area



Figure 3-6: Rolling Green neighborhood north of Big Pine and within the CDP

At the same time that these initial observations were being made, we were also exploring other readily-available datasets in an attempt to find other demographic data for the region's communities. We looked at other Census/ACS data thinking that some other data categories might be more complete than MHI. Though there was some variation in completeness, in general we found the Census/ACS data to be inconsistent and incomplete for the communities and Census-based geographies of the Inyo-Mono region. Other datasets explored for the region included unemployment data (from the Labor Market Information Division of the California Employment Development Department), community-specific data surveys (such as for the Bishop Paiute Tribe), and home sale price (from the Mono and Inyo Counties Multiple Listing Service database). None of these datasets was complete to the level of detail we required; in fact, some of the datasets were less complete than the Census/ACS. A sample of the data spreadsheet used for this exercise is shown in Figure 3-7. Although we focused this effort specifically on the Inyo-Mono region, we believe that what we found is commonly realized in other rural locales throughout California.

	_						-
Community	Рор	мні	Pct_HsEd	MedHHvalue	Pct_FoodSt	Pct_HHrent	Pct_HHown
Big Pine	1682	57109	90.4%	254100	3.57%	26.3%	76.7%
Big Pine Paiute Tribe	262	43214	93.2%	Null	9.38%	Null	Null
Big Pine CSD	Null	Null	Null	Null	Null	Null	Null
Bishop Paiute Tribe	1828	46384	86.3%	Null	18.01%	27.4%	56.0%
Bridgeport	402	75346	100.0%	369400	2.27%	37.7%	62.3%
BridgeportPUD	Null	Null	Null	Null	Null	Null	Null
Lee Vining	333	68167	83.6%	231700	13.04%	49.4%	50.6%
McGee Creek	29	Null	86.9%	1000000	Null	4.2%	95.2%
Mesa	368	55909	92.1%	Null	0.56%	Null	Null
Mono City	78	62708	100.0%	400000	Null	28.6%	71.4%
Rovana	Null	Null	Null	Null	Null	Null	Null
Shoshone	33	28750	81.8%	10000	Null	70.6%	29.4%
Swall Meadows	397	75677	100.0%	639000	Null	8.2%	91.8%
Тесора	101	21806	74.5%	87900	Null	38.0%	62.0%

Figure 3-7: Sample data from alternative metrics exercise

Based on initial site visits of the communities in the region, we developed a survey to collect qualitative and quantitative information directly within a community that could then be used to determine its disadvantaged status. We wanted to survey at least ten communities –known DACs, known non-DACs, and communities whose status was unknown due to lack of data – to compare characteristics among the communities and look for correlations between MHI and other features. We developed an observation-based survey that could be administered by one person driving or walking through a community. We chose this kind of survey rather than a full income survey as a visual survey would be faster and require less staff time and money.

This survey directs the user to collect information directly from observations of the community. The survey includes community-level information, such as the presence/absence/distance to emergency services (medical, law enforcement, fire), grocery store, post office, etc. We

reasoned that communities that do not have basic services available within the community are at a disadvantage compared to communities containing these services. The survey also includes information about property-level observations, such as characteristics about houses, yards, and cars. A sample completed survey is shown in Figure 3-8.

The survey was performed in fourteen communities – either census-based geographies or "communities of interest" – during the period November 17, 2013, to January 22, 2014 (see Table 3-2). The same Program Office staff member conducted all fourteen surveys so that there would be minimal variation in interpreting observations, though we still recognize the subjectivity inherent in several of the data categories. The communities were chosen in a haphazard way but for various reasons. Some communities were chosen previously by Program Office staff and an advisory committee based on their MHI-determined DAC status; other communities were chosen because the staff member was visiting the community(ies) for other purposes; still others were chosen to specifically investigate the data discrepancy between census-based geographies and communities of interest (such as Big Pine and Bridgeport). In the Tale 3-2 below, the communities highlighted in gold text are those for which there are no Census income data available or for which Census data are not based on the same geography. In addition to filling in the community survey form, multiple photos were taken to further document the observations.

Table 3-2: Communities included in the alternative metrics survey

Community Surveys Conducted Big Pine Census-Designated Place Big Pine Paiute Tribe Bishop Paiute Tribe Bridgeport Census-Designated Place Bridgeport Public Utilities District Lee Vining Census-Designated Place McGee Creek Census-Designated Place Mesa Census-Designated Place Mono City Census-Designated Place Rovana Shoshone Census-Designated Place Swall Meadows Census-Designated Place



Disadvantaged Co	mmunity I	ndicators Survey – 2013			
Community: Tecopa (Incl. Tecopa Hot Sprap & Tecopa Height)					
Date of Survey: $11 17 13$	Date of Survey: 11 17-13				
Community Characteristics					
Does the community have:	Yes/No	If no, distance to negrest locate			
Fire station	Ves	and and the to hoursain to the			
Hospital/medical clinic	No	Shashory-sliding scorlo			
Schools	Ves No	Stementary only Arosenue -DV			
Gas station	NP	Shechone OK-4th			
Price of gas	N/A-				
Post office	les				
Grocery store/market	No	Shashone - or hund store De homes- ave any			
Bank	NO	Pahrume po o			
Police station/Sherriff sub-station	No	Shoshow			
Notes:		ibrury: Fint S			
		The S The			
Homes		(T)			
Total number of homes surveyed:]]	HITHH	+ M+ TH+ IM M+ M+ M+ M+ M+ M+			
Chain link tence? THETHETHET () all the way perornal house Mobile home? THETHETHETHETHE					
One-story home? THE THE HILL THE	IHTHL THL	NU THEATLY W			
Junk cars around home?	D				
Landscaping? M. TH. M. M. M. (1)					
Junk or trash in yard? THUTHL THL 11 (B)					
House in need of repairs outside? THU II ③					
Notes (continue on back if needed): Dechance has out house ; lack of street planning; multi-family/Unit homes Photo evidence? For purposes of comparing hand to Eigeneed determine if have is occupied ref apts. in addition to homes 21					
HUSO Comm. Unter-ac Invo County Invo Cty stoff come out	eess tose	mian gardens / good			

Figure 3-9: Big Pine, CA



Figure 3-10: Swall Meadows, CA



Once the community surveys were complete, data analysis followed. The ultimate goal of the exercise was to find one or more types of data that could act as indicators or substitutes for MHI data, particularly for communities that have no MHI data available, to eventually be used to designate a community as being disadvantaged or not. For each of the communities, the tallied data collected in the field were summed and entered into a spreadsheet. For the community-level data, the "yes/no" answers were input as binary data (e.g., 1,0). If a community does not have a certain resource ("no" answers), the distance to the nearest resource was calculated and entered. In addition, an index was created for each resource based on the level of service available. For example, in the school category, a "1" was assigned to

communities that do not have any schools, a "2" was assigned to communities with partial K-12 schools, and a "3" was assigned to communities containing full K-12 schools. Also, total and average distances to emergency services (fire, hospital, police) were calculated for each community. For the property-level data, the tallies collected in the field were summed, and then those sums were divided by the total number of properties observed to come up with a percentage for that particular category (such as percentage of mobile homes). Those percentages could then be compared across communities. The full dataset is provided in Appendix B.

For our statistical analysis, linear regressions were run, though we acknowledge the limitations of this analysis given the small sample size and non-random sampling. Several categories of quantitative community-level and property-level data (independent variable) were regressed against Median Household Income (dependent variable), one at a time, for the ten communities with MHI data available. The coefficient of determination (r^2) was examined for each individual regression and compared among regressions. This outcome of the analysis would tell us how well MHI (dependent variable) is explained by any individual or combination of independent variables. The r^2 values of some of the early regressions were used to determine which other regression analyses should be performed, as it was clear that some of the data categories would yield weaker r^2 values. In general, the property-level data showed a better fit with MHI than community-level data. The r^2 values for the various regressions performed are listed in Table 3-3.

Table 3-3: Coefficient of determination values for community survey indicators versus MHI

Metric	r ² value vs. MHI
Distance to fire station	0.0184
Distance to hospital	0.0184
Average distance to emergency services	0.0383
Total distance to emergency services	0.0385
Sum of distance to all services	<0.0001
Percentage chain link fences	0.0117
Percentage mobile homes	0.3789
Percentage single story homes	0.5937
Percentage non-operational cars	0.3488
Percentage with landscaping	0.0617
Percentage with trash in yard	0.2314
Percentage of homes with repairs needed	0.0158
Average of all percentages	0.2579

In general, r^2 values were fairly low. Nevertheless, the analysis yielded interesting results. As indicated in Table 3-3 above and Figure 3-11 below, of the data collected, percentage of single story homes (which includes mobile homes) was the best predictor variable for MHI (r^2 : 0.5937). Indeed, observations indicated that two-story homes were almost always only observed in

non-disadvantaged communities.

The equation for the percentage of single story homes regression was then used to calculate estimated MHI values for the four other communities that received community surveys but do not have Census-based MHI values available. The following equation was used:

Figure 3-11: Percent Single Story Homes vs. MHI



Median Household Income = (-687.9422 x Percentage Single Story Homes) + 109,690.63

Based on this equation, the four community MHI estimates are shown in Table 3-4.

Community	Expected DAC	% single story homes	Estimated MHI	Actual MHI
Big Pine CSD	х	90.72 %	\$47,279	Unknown
Bridgeport PUD	х	75.00%	\$58,094	\$41,499
McGee Creek CDP		47.06%	\$77,315	Unknown
Rovana	х	100.00%	\$40,895	Unknown

Table 3-4: MHI as estimated from percentage single story homes

The estimates for Big Pine, McGee Creek, and Rovana fit with expectations and observations of those communities. Big Pine CSD service area and Rovana show characteristics of disadvantaged communities, while McGee Creek does not. Bridgeport PUD paid to have an income survey done of the service area so that it could determine its true DAC status for certain funding programs. The income survey indicated that the service area is indeed a DAC, but our regression equation estimated the MHI to be much higher. This discrepancy points to the fact that percentage of single story homes (or any individual data category from the community survey) is not a perfect predictor of MHI.

Another way to look at the data is by examining thresholds. The equation above indicates that communities with 89% or higher of single story homes would be considered DACs. Community MHI data sorted smallest to largest were compared with each one of the variables collected in the survey and from ACS. Again, the closest correlation was with single story homes, which indicated that communities with about 93% or more single story homes would be considered DACs. Percentage of mobile homes also showed a loose relationship, with a threshold of about 30% (communities with more than 30% mobile homes are likely to be DACs). More analysis could be performed with these data, including increasing the sample size, testing various combinations of data categories in multiple regressions, and attempting to develop an index based on multiple variables.

This exercise was focused on sparsely-populated, rural areas of California, and we do not claim that these results would necessarily be applicable to larger urban areas. However, we believe that the methods and preliminary results have merit nonetheless and begin to point to other factors that can reliably be used to identify and characterize DACs.

We submit the following recommendations for follow-up steps to this exercise: conduct additional community surveys in the Inyo-Mono region and perform the same set of analyses again, and conduct these community surveys in and collect ACS data for other rural, sparsely-populated parts of IRWM regions to see if the results hold outside the Inyo-Mono region.

Other approaches to identifying DACs

During the course of this exercise, the California EPA debuted the California Communities Environmental Health Screening Tool (CalEnviroScreen). From the website of the California

Office of Environmental Health Hazard Assessment, "CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution" (http://oehha.ca.gov/ei/ces2.html). Although the tool does not claim to define and identify disadvantaged communities, per se, we do know that some State agencies are using this methodology to define disadvantaged community for their grant funding purposes. While we recognize the robustness of this tool, given that it incorporates 19 indicators into its index of pollution burden and vulnerability, we contend that it does not adequately reflect all disadvantage in California. We suggest that this methodology is flawed because it relies too heavily on pollution-related criteria. The highest scores resulting from the tool show most of the "disadvantage" (as defined by the tool) to be located in the Sacramento and San Joaquin Valleys, Los Angeles and surrounding areas, and parts of the southeastern California desert. Most of the areas located in the Inyo-Mono region have relatively low scores, which indicates less concern with pollution burden but which misses other indicators of disadvantage (Figure 3-12). Furthermore, the tool was created at the Census Tract level. Thus, the scale and emphasis of the tool mean that it misses many of the more remote and rural parts of California, including the Sierra Nevada, much of northern California, and the eastern Sierra. Although these regions may not face the same challenges and difficulties as those identified by the tool, they remain equally challenged in providing adequate and safe drinking water to all of their communities.

Another tool for collecting and viewing community-level socioeconomic information is the California State Parks Community Fact Finder (<u>http://www.parkinfo.org/factfinder2011/grantee.html</u>). From the information available, it does not appear that the tool accesses Census or ACS data, so it would be difficult to compare their results with the current DWR method.

We recognize the difficulty in developing a one-size-fits-all definition for disadvantaged community. We encourage the legislature and State agencies to recognize the various forms of disadvantage, in relation to water resources, throughout the State and work to develop a method of identifying DACs that is inclusive and flexible given the diversity of communities and geographies in California, yet one that is also precise and descriptive. We also urge a renewed consideration of the issue of scale with respect to DACs; in other words, is there a way to recognize the disadvantage of individual communities of interest in rural and sparsely-populated regions while at the same time acknowledging that larger areas as a whole (such as counties) may be disadvantaged? In the end, we need to ask ourselves whether our method of defining disadvantaged community results in assistance being provided to those communities that need it most.


Figure 3-12: CalEnviroScreen 2.0 scores for the Inyo-Mono IRWM region

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Outreach

The following section details the many types of outreach we performed over the course of the DAC grant. Outreach was ongoing throughout the project, and indeed, outreach formed the backbone upon which the rest of the tasks relied. Given the small communities and total population of the region, our outreach did not reach a great many people, but the quality of these interactions was apparent to all parties involved. Over the course of the DAC grant, more than 20 targeted and public outreach meetings were convened inside and outside the region, reaching more than 125 people. These outreach exercises were directed both at members of the public who live in disadvantaged communities and at the water and wastewater systems that serve DACs.

In general, outreach has always been a top priority for the Inyo-Mono Regional Water Management Group (RWMG) and Program Office because of the open, inclusive, and transparent nature of the governance structure of the group. From the beginning, the Inyo-Mono RWMG has made decisions using an all-or-nothing consensus process. Furthermore, the RWMG has always allowed for any group or organization to join the IRWM Program and become part of the decision-making process. In order to ensure the most representative group possible, RWMG Members and the Program Office started reaching out to various entities at the Program's inception and have continued this outreach throughout the six-plus years of its existence. Program Office staff has conducted outreach with tribes, DACs, small water systems, community organizations, environmental organizations, public agencies, elected officials, and so on. Over the course of the Program's development, well over 100 meetings specific to the IRWM Program have been held throughout the region. Currently, there are almost 200 people on the Inyo-Mono email contact list, representing more than 90 organizations and members of the public, although only a small fraction of this list attends meetings.

While the metrics exercise as described above continued throughout the outreach process, we were able to take intermediate results from the exercise to apply to outreach. For example, our observations in the community of Big Pine led us to make contact and have several meetings with the Big Pine Community Services District, even though the Census Designated Place of Big Pine does not meet the MHI criterion for DAC. Outreach began early on in the project and continued through to the project's completion as we found it was important to be available for outreach opportunities that presented themselves later on in the grant work, apart from targeted outreach meetings. Although outreach was the primary focus of the grant work, other grant-related activities took more time and attention.

As a first step in the DAC outreach process, we developed a summary of the disadvantaged community outreach and involvement that had been performed thus far in the Inyo-Mono IRWM planning process. This summary is called "Disadvantaged Community Involvement in the Inyo-Mono Integrated Regional Water Management Program, 2008-2011" and is included as Appendix D. The report summarizes the efforts to identify disadvantaged communities in the Inyo-Mono region based on 2000 Census data and discusses some of the early lessons learned about conducting outreach to DACs and tribes (below), which set the stage for the outreach

conducted throughout the DAC grant. With this previous knowledge in mind, we recruited both a regional outreach coordinator and an outreach trainer to help us prepare for the DWR-funded DAC outreach project. Through the course of the grant, we came to realize that the experience that Program Office staff had gained from the early outreach efforts positioned it well for conducting more focused outreach to DACs and tribes.

Lessons learned from 2008-2011 DAC outreach

- Understand who the target audience is (e.g., with whom you will be meeting) to understand where and when to meet (such as during the day vs. evening meetings)
- Target outreach materials and approach appropriately (e.g., is a Powerpoint presentation appropriate for the audience, or perhaps paper copies of simple handouts and maps along with a verbal description of the Program and time for questions?)
- DAC (and other) audiences are often interested in what other stakeholders are involved in the IRWM Program, what funding opportunities are available, technical trainings, and engineering assistance
- One-on-one meetings with individual communities and stakeholders may be more appropriate than trying to meet with several entities in one location
- It is important to be able to travel to the target community as there may not be time or funds for them to travel to outreach meetings
- Though there may be commonalities across regions, each community/DAC/tribe/water system/stakeholder has unique and individualized water-related concerns

In early 2013, a "mid-grant synthesis" was produced to summarize the outreach performed up to that point in the grant, as well as the outreach training early on in the grant. This report is included as Appendix C. Five lessons learned were derived from this early work:

1. IRWM regions, and the water issues they address, need better public relations and higher visibility in the media. We have found that most members of the public (and of the media) have no idea what IRWM is, how the Inyo-Mono Program is involved in regional water issues, or what projects are funded by Prop. 84 IRWM grants.

- 2. Boards of directors of small water systems would benefit from training on such topics as rate structures, Proposition 218, and grant proposal development. Such training would help build capacity within water systems and allow them to be more self-sufficient.
- 3. Several meetings may be required to engage new communities and involve them in the IRWM process. IRWM is a complex concept to explain to new stakeholders, and it is important to follow up from meetings to answer questions and provide additional information.
- 4. It is important to recognize that outreach to and engagement of Native American tribes should not be "lumped in" with outreach to DACs. IRWM groups need to use outreach and communication techniques appropriate for tribes. These might include in-person communications, reaching out to tribal council members, and regular follow-up communications.
- 5. Disadvantage can mean more than low income. There are other socioeconomic and cultural factors to consider when characterizing DACs and working to make resources available. The current simple definition affects what communities are engaged as DACs and to whom resources and funding are targeted.

The approach to outreach changed minimally after the mid-grant synthesis and evaluation, though individual outreach efforts certainly benefitted from the lessons learned as outlined above. The initial set of DAC/tribe outreach meetings was quite successful in terms of creating understanding and shared learning on the part of both stakeholders and the IRWM Program. It was important to build upon these first interactions in order to solidify relationships and continue identifying needs and providing information and resources. Thus, the later outreach, while including formal meetings, more often took the form of follow-up phone calls or site visits.

DAC Outreach Materials

Before describing the outreach efforts themselves, we will describe the various materials developed to enhance our outreach efforts. Well before the DAC grant funding became available, we had been creating various materials to assist us with regional outreach. These materials included a one-page "brief" describing past accomplishments and current work that was updated periodically, a list of frequently-asked questions about the state IRWM Program and the Inyo-Mono IRWM Program, and various maps that showed the work of the IRWM Program. Towards the beginning of the DAC grant, we developed a tri-fold brochure that presented IRWMP-specific information in a very brief format and directed readers to the website for more information. Through feedback at the public outreach meetings, we found that the brochure contains enough information for people to digest in a short time but that some of the longer materials presented too much information and failed to keep people's attention. We bring ample copies of the brochure to all outreach events. The brochure can be seen in Appendix E.

The Inyo-Mono IRWM Program website (<u>www.inyo-monowater.org</u>) has proved to be perhaps the best outreach tool available. Early on in the Program, the RWMG decided to create a website as a means for providing information to those interested in learning about the Program. Although internet access can be unreliable and/or is not available everywhere in the region, we have heard time and time again that RWMG stakeholders, new stakeholders, state water agencies, and members of the public go to the website for information about the Program. Thus, through the course of the grant, we put a lot of attention into the structure, content, and look of the website to make it more navigable, user-friendly, and intuitive. In acknowledgment that not all households in the region have personal computers available, we also invested in a mobile-device version of the website, thus allowing the public who access our site via their cell phone to have a better user experience.

Within the Inyo-Mono website, there are several pages that introduce the visitor to the concept of IRWM planning and to the Inyo-Mono IRWM Program in particular. New IRWM stakeholders are often interested in what other organizations in the region are involved in the effort, so we developed a webpage listing all of the groups that regularly or sporadically participate in the Program. Finally, we maintain up-to-date information on the various projects that are being funded. We have found that most stakeholders are interested in seeing how grant money has been used in the region.

DAC Grant Outreach Meetings

At the beginning of the DAC-focused grant, we evaluated the outreach performed from 2008 to 2011, as well as the current membership of the RWMG, and identified additional communities to target for outreach. In general, this list contained many water systems serving disadvantaged communities in the region, as it had been difficult up to that point, for various reasons, to engage these water systems and get them involved in the IRWM process. Additional potential contacts were gathered from the Environmental Health departments of Invo and Mono Counties, California Rural Water Association, RWMG stakeholders, and from neighboring rural water providers. At the beginning, our strategy was to engage with all DACs and tribes in the region, regardless of their geographic location, their water situation, etc. Program Office staff attempted to make contact with these communities using either intermediate contacts or "cold calls". This initial outreach was partially successful; we were able to arrange several one-on-one meetings with water systems and/or community members, while other DACs did not respond to this initial (or later) contact. In general, we did not work directly with individual well owners, who make up a significant but unknown fraction of the water users in the Inyo-Mono region. A few individual well owners have attended the public outreach meetings and have shared some of their challenges, but as of now, there is not a formal means by which they can participate in the IRWM process and receive funding assistance. However, individual well owners could (and did) attend the trainings described in Chapter 4.

An example of a typical DAC outreach meeting is exemplified by the following description. Program Office staff members are invited to a meeting of a water system serving a DAC. The water system is governed by a board of directors made up of volunteers. The board holds its regular meetings in the evening as most of the board members work during the day. Program Office staff travels to the water system headquarters (which may be a board member's house) to meet with the board. Program Office staff presents information about the IRWM Program and provides basic informational materials to the board but also has a discussion with the board about the water system's needs and issues. Program Office staff follows up with water system staff or board members after the meeting to discuss signing the MOU or to take action on one or more issues that came out of the initial meeting. It is this periodic but sustained contact after the first meeting that solidifies the relationship.

Much of the outreach work during the second half of the grant consisted of such follow-up communications. For example, two small DAC water systems in northern Mono County got to know IRWM Program Office staff through board meetings of the water systems. Both systems now regularly contact the IRWM Program with requests for resources or information or with questions. While neither system has had projects funded yet through the IRWM Program, board members of both systems see the value in the other resources the IRWM Program can provide and also have taken advantage of the IRWM network to talk with other small water systems.

Based upon the two kinds of outreach described above – formal one-on-one meetings and follow-up communications – the outreach strategy became more focused. Through several attempts at communication, we learned that some communities in the planning region are simply not interested in IRWM or participating in a larger regional water discussion. Other parts of the region are more distant culturally and politically, meaning the residents live far from other people precisely so they can be left alone and not participate in larger collaborative efforts. Therefore, we focused our efforts towards communities that were responsive to our attempts at contact. We also worked to improve our "messaging" of the IRWM Program. We learned what kind of information stakeholders want to learn up front – funding opportunities, what other stakeholders are involved, access to trainings and technical assistance – and left other IRWM information for later interactions.

Outreach also took the form of different kinds of meetings and gatherings. One example is two public outreach events that took place around the middle of the grant period. The goal of the meetings was to validate the findings from the first half of the grant work. Unfortunately, attendance at these public meetings was very light, though several dozen people and organizations were invited to each meeting. Three people attended the meeting in Lone Pine, though two of these attendees represented water systems with which we previously had very little contact (Keeler CSD and Darwin CSD). Only two people came to the meeting in Bridgeport. The low attendance, however, also allowed for more in-depth conversation, and the Program Office learned a great deal more about specific water issues in the region.

Another aspect of our outreach efforts during the grant was to present preliminary findings from the grant to a gathering of Sierra Nevada IRWM region representatives and gather feedback and ideas. We used the 2013 annual Sierra Water Workgroup summit as an opportunity to present our findings to-date and hold a series of discussions. The Inyo-Mono IRWM Program hosted an entire day of the summit and held several sessions focused on the seven DAC pilot projects, DAC outreach methods, tribal outreach and sovereignty issues, legislation pertaining to DACs and water resources, and alternative metrics for identifying DACs. Representatives from two of the other DAC pilot project regions attended and presented about their DAC grant work. While substantive feedback on the Inyo-Mono's DAC work was not received, the DAC/tribal sessions were useful for communicating our work and getting others to start to think

about DAC & tribal outreach in their own regions. Also, the process of recruiting panelists and speakers for six different sessions proved to be an outreach effort in and of itself, particularly in reaching DAC & tribal representatives outside the Invo-Mono region. We learned that people we contacted to participate on a panel generally did not respond positively (or at all) if we did not know them personally. Therefore, we began to rely heavily on our network of contacts throughout the state to help reach out to people they knew to invite them to be part of the summit. A very positive aspect of the recruitment process was that the Inyo-Mono IRWM Program was able to provide travel scholarships for many of the DAC and tribal participants, which significantly increased DAC and tribal involvement in the summit. A summary of the 2013 summit is provided in Appendix F.



Other Outreach Opportunities

Over the course of the grant work, we found several unlikely outreach venues. Such venues allowed IRWM Program representatives to talk with DAC members with whom we previously tried to initiate contact or to talk with members of the public in DACs who are not engaged in water management or planning but who are water users.

The various training sessions we organized through the DAC grant (Chapter 4) were examples of unlikely outreach venues. Because the trainings covered topics of specific interest to small water systems in the region and often offered continuing education credits, they appealed to water operators and board members that might not otherwise respond to outreach from the IRWM Program. Program Office staff attended each training in order to provide assistance as well as an introduction to the IRWM Program to the training participants. Therefore, staff was able to make use of down time during the trainings to meet new people and learn about additional communities and water systems.

Similarly, the individual water system needs assessments conducted by the California Rural Water Association (CRWA), as well as the needs surveys conducted by the IRWM Program Office (Chapter 4), turned out to provide more outreach opportunities. The CRWA representative conducting the needs assessment would ask each water system if it had heard of the IRWM Program and if it wanted more information about the Program. In addition, the needs surveys asked a question about participating in the IRWM Program. Several systems were already participating in the Program, but a few expressed interest through these channels and asked for more information. Program Office staff responded with the usual introductory outreach materials and offered to meet with the systems.

The IRWM Program also participated in various public events, such as Earth Day in Bishop and World Water Day on the Bishop Paiute Tribe reservation. We have found it useful to have a presence at such events so that both water managers and the public become more familiar and comfortable with the IRWM Program. Typically, we have a Program Office member staffing a table and also make the outreach brochure available to passersby.

Finally, there have been several opportunities to present information about the IRWM Program or specific work that the Program has undertaken, like climate change, to various audiences in the IRWM region. Two examples are speaking to civic organizations, such as the Rotary Club, about specific DAC water issues (such as Tecopa); and giving a talk about the recent/current drought at a public water forum in an Owens Valley DAC. Though the audiences are typically quite small at such events, these informal presentations provide an opportunity to talk with residents one-on-one and focus on relationship-building.

Also as a part of this DAC grant work, we reached out to and visited several other IRWM



regions with large proportions of DACs. The details and outcomes of this effort are described in the midgrant outreach synthesis (Appendix C); however, follow-up work has taken place since these initial meetings, similar to that done with individual DACs within the region. The relationship-building that took place with the representatives of these other IRWM regions was invaluable, and these relationships are ongoing. Representatives from these various IRWM regions get together periodically at venues such as the biennial DWR IRWM

Conference and the annual Sierra Water Work Group Summit. We are now able to look to each other for assistance on certain issues or just to share common concerns about DACs and tribes. The inter-regional learning facilitated by this project has helped, and will continue to help, DAC and tribal engagement in IRWM state-wide.

Findings Dissemination

A major focus of the latter part of the DAC grant project was to share the findings of our DAC project work with various audiences: regional DACs and tribes; Sierra Nevada IRWM groups; local, regional, and state agencies; and integrated water management practitioners outside California. Representatives of the Inyo-Mono IRWM Program participated in a series of events, comprised of different types of audiences, to share the results of our work. The first main findings dissemination effort was the production of the DAC documentary titled *Living in the Rain Shadow*. The idea behind producing the documentary was to describe, through a user-friendly and accessible medium, DACs in the Inyo-Mono region and some of the difficulties they face in dealing with water issues. We wanted the film to be an educational resource for many different audiences, from local/regional DACs and water agencies to state agencies to national water practitioners. We worked with local filmmakers, who were already somewhat familiar with some of the water issues in the region, to develop an outline of the story to be told by the film. Because of our strong relationships with many of the water-related stakeholders in the Inyo-

Mono region, we were able to recruit "characters" for film whom the we interviewed on-camera. The chosen "characters" spoke knowledgeably and articulately about the challenges faced by DACs in the region. The Program Office and others in the region then worked with the filmmakers through several draft iterations of the film to hone the story and improve the overall flow of the film.



The intention was to show the film to at least 500 people in the first few months after the completion of the film. The film is available to stream through the Inyo-Mono Program website and is also available as a DVD (<u>http://inyo-monowater.org/inyo-mono-irwm-plan-2/dac/findings/</u>). We hope that the film will be viewed by a diversity of audiences and that it will directly influence those who create water policy in California.

The Inyo-Mono IRWM Program hosted a session of the 2014 Sierra Water Workgroup Summit. While the Inyo-Mono Program's participation in the 2013 summit was focused on gathering



information and learning, our participation in the 2014 summit was aimed at sharing results and receiving feedback. In one session, we briefly presented the work of the project, focusing on the alternative metrics portion of the work, and then showed the brand new DAC documentary. А discussion was then opened about all aspects of the DAC project work, including the film. In general, participants indicated that the grant work was useful at both the regional and state levels and that the film was a particularly useful tool to present the importance of DAC and tribal outreach and involvement in IRWM. Again, hosting this summit session allowed us to continue building and solidifying relationships with other Sierra Nevada IRWM regional representatives while also presenting the Invo-Mono IRWM Program as a goto resource for rural IRWM groups seeking to do DAC and tribal outreach.

The week after the Sierra Water Workgroup Summit, we hosted a one-day regional DAC and tribal water conference to roll out the results to our regional stakeholders and validate our findings. About 50 people attended the conference, representing regional DACs, tribes, municipal agencies, and small water systems; the Lahontan Regional Water Quality Control Board; and federal agencies. The day's schedule allowed us to present the work of the grant in greater detail than was possible at the Sierra Water Workgroup. In particular, we sought very specific feedback on the draft recommendations we had prepared for the Department of Water Resources. Participants at each table at the conference venue were asked to discuss one recommendation and then provide thoughts or insight about the recommendation to the larger group. This feedback was incredibly thoughtful and helpful, and attendees appeared to be interested and engaged in these discussion topics. In the afternoon, we transported the conference participants to Big Pine, where we heard from two different DAC water systems (one of which is a tribe) about the challenges of managing small water systems with limited resources and expertise. Many of the other water systems attending the conference cited the afternoon's activities as being the highlight of the day. Perhaps most importantly, participants were given time during the day to network and interact with each other. After the conference, we heard of several instances in which water systems shared information and resources with each other during breaks and lunch.

Later that same day, the Program Office had the opportunity to re-present some of the information about the DAC grant to the Lahontan Regional Water Quality Control Board and staff at one of its regular meetings, which this time was being held in Bishop. This presentation

was a unique opportunity to directly educate policymakers and regulators about the plight of DACs in the Inyo-Mono region specifically and the inclusion of DACs in regional water planning more generally. This meeting was a reminder that the results of the DAC grant work are applicable for many different audiences.

We were invited to be part of a DAC outreach-specific panel at the Summer Specialty Conference of the American Water Resources Association, which was focused on Integrated Water Resources Management. All of the panelists in the session were DAC and/or IRWM practitioners in California. We briefly presented the work of the Inyo-Mono IRWM DAC grant, again focusing on the results of the DAC metrics exercise. In a separate session, we had the opportunity to show the film to the conference attendees.

The final presentation of the findings was to be given to DWR as the grantor and recipient of many of the recommendations of the project. This presentation was made at the DWR offices in Sacramento towards the end of the grant period. About 10 DWR-IRWM staff members attended. We presented an overview of the work performed during the grant, answered questions, and had a discussion about the set of preliminary recommendations aimed at DWR, other state water agencies, and other regional IRWM groups. On the same day, *Living in the Rain Shadow* was shown to two audiences in Sacramento: one composed primarily of DWR staff, both in person and via a webcast of the film, through its Environmental Justice Film Series; and one sponsored by the California Environmental Protection Agency through its Environmental Film Series. More than 200 people viewed the film through these two events.

Early on in the process of all seven DAC Pilot Projects, DWR expressed a desire for the project regions to communicate with each other regarding lessons learned and recommendations from the grant work, and just more generally about how the grant work is progressing. The Inyo-Mono Program Office initiated the phone call meetings of the project regions and DWR. Participants mostly discussed the current status of their grant projects and shared early lessons learned. It was hoped that there could be an inperson meeting of all seven regions



before the projects were complete, but funding for such a meeting has been elusive. However, With DWR's support through the Inyo-Mono grant, a workshop is being organized and is scheduled to be convened in December 2014. The intent of the workshop is to bring representatives involved in all seven pilot projects together to synthesize recommendations and develop strategies and actions that local, regional, state, and IRWM regions can take to improve water-related needs of disadvantaged communities. Findings from the workshop will be

submitted as an addendum to this report.

As a part of the seven-region collaboration, a webpage was created on the Inyo-Mono website to share information among the project regions (<u>http://inyo-monowater.org/irwmp-dac-collaboration/</u>). Information on the webpage includes a map highlighting the regions that received the DAC grant, regional work plans, and other documents relevant to collaborating regions. A section was added to the bottom of the page that allows other regions to post comments or provide links to useful DAC-information. Although the page was not fully utilized, it was a useful communication tool for the seven regions when one was needed. It was thought that representatives from the other regions were busy with their own DAC projects and other work and that communicating via this online tool was not high priority. E-mail was usually a more successful way of getting people to read and respond to messages.

Chapter 4 : Assessing Needs and Building Capacity

In the 1980s, the California Department of Water Resources conducted studies of water resources in the "Gold Country" of the western slope of the Sierra Nevada. Among other results, these reports identified several generic issues that make supplying water to rural mountain communities difficult (California Department of Water Resources, 1990):

- Rapid growth and development will burden existing water supplies and sewage treatment.
- Groundwater sources are not reliable in terms of quantity and quality.
- Water distribution systems are inefficient.
- Communities located on ridges are gravitationally disadvantaged.
- The best locations for impoundments have already been exploited by others.
- The revenue base is not sufficient to support water facilities at low rates per customer.
- Local funding sources are limited.
- Developing new water projects is economically and environmentally costly.
- Construction of new conveyance systems is expensive because of dispersed users and terrain.

These issues continue to be problematic throughout much of rural California after a quarter century and are even more so in economically disadvantaged communities. Every community has particular needs with respect to safe, reliable water supply and wastewater infrastructure depending on its geographic location and the history of development of the community and nearby water resources. Most rural communities within the Sierra Nevada were formed and grew in locations that were in close proximity to one or more natural resources, such as minerals or timber. Other settlements were located along major travel corridors because of the opportunities for trade. Still other communities developed where agriculture was possible because of good soils, level terrain, and water availability (e.g., Duane, 1996). Over the past 150 years, many of the original conditions that led to settlement in a particular location have changed or even vanished. Other than for agriculture, good water supply was rarely a chief determinant of location for settlement. Many rural communities have grown well beyond the limits of the initial water supply that allowed settlement to begin decades ago. Upstream diversions and appropriative water rights may have further constrained current availability of water resources. And, of course, the physical water supply infrastructure that was built long ago may be insufficient for modern needs and may not have been adequately maintained or upgraded. In summary, there is a variety of "legacy" issues that combine to result in inadequate and/or low-quality water supplies for rural communities today.

One of the fundamental goals of this DAC pilot project was to identify the unique water-related needs of regional DACs and develop a variety of means to assist these communities in obtaining reliable water supplies and wastewater treatment. Our approach had three parts: determining the needs of communities, determining how to improve the capacity of the

communities for self-sufficiency, and improving access to information about technical issues and financial resources.

Assessing Need

California Rural Water Association Involvement

One objective of the pilot project was to investigate the real water-related issues, problems, difficulties, and needs as expressed by DAC water purveyors in the Inyo-Mono planning region. The water-supply sector has long recognized that needs assessments are a valuable planning tool for small water systems, especially for budgeting (e.g., Cromwell and Jordan, 1999). Needs assessments as a means of evaluating the condition of infrastructure and facilities and the adequacy of operations, maintenance, and financing have become somewhat standardized by the National Rural Water Association and its state members. The California Rural Water Association (CRWA) has extensive experience in conducting needs assessments and was contracted to provide this service for the pilot project (see Appendix G for details and Appendix H for results).

During 2013, CRWA conducted 17 water system needs assessments in DACs within the region. These water systems included two tribes, six public entities, and nine private mutual water companies. DAC water systems were contacted about their interest in receiving needs assessments based on several sources: Program Office staff and CRWA staff knowledge about systems in the area; a list of systems that did not receive needs assessments through an effort 1-2 years prior; and talking with the Environmental Health Department staff of both Inyo and Mono Counties, who are familiar with needs of individual water systems.

Systems receiving CRWA water system needs assessments in 2013:

- City of Bishop
- Sierra East Mobile Home Park
- Death Valley National Park/Furnace Creek
- Sierra Breeze
- Searles Domestic Water Company (Trona, West End, Argus, Pioneer Point)
- Benton Paiute Tribe
- Eastern Sierra Community Services
 District

- Meadow Creek Mutual Water Company
- Wilson Circle Mutual Water Company
- Pine Creek Village
- Big Pine Community Services District
- Cartago Mutual Water Company
- North Lone Pine Mutual Water Company
- Darwin Community Services District
- Lone Pine Community Services District
- Olancha RV Park
- Timbisha Shoshone Tribe

The process included a written questionnaire and an on-site interview by CRWA staff. Much of the procedure involves evaluating water system documentation of institutional knowledge to ensure continued operations in event of loss of key personnel. The needs assessments covered the following technical, managerial, and financial (TMF) elements:

- <u>System Description</u> general information about service area and facilities
- <u>Water Source Capacity</u> reliability and safety of system's source(s) of water
- <u>Water Rights</u> legal basis for water supply
- <u>Ownership</u> legal framework of ownership of system
- Organization delineation of governance, management, and operational staff
- <u>Certification of Operators</u> documentation of operator certifications
- <u>Training</u> training plan for board and employees
- <u>Policies</u> documentation of procedures for governance and operations
- <u>Operations Plan</u> documentation of procedures to operate the system
- <u>Emergency Response Plan</u> procedures to follow in event of emergency
- Budget Projection / Capital Improvement Plan 5-year plan for building reserves
- <u>Budget Control</u> policy for managing and safeguarding finances

Because the needs assessments were intended to help the participating systems, the results from each individual assessment are considered confidential, though a general compilation of results is reported here. The summary on the following page was provided by the CRWA (Reger, 2013).

The report prepared by the CRWA (Reger, 2013), summarized below, shows that while most systems are adequately prepared in most TMF elements, there are many areas that fall in a "needs improvement" category (see also Appendix H). All of the TMF elements examined in the needs assessments are important to reliable operation and long-term viability of a water system. None of these elements can be considered a luxury or optional. Therefore, one can readily observe that there are a large number of unmet needs among the systems surveyed and, by inference, their unsurveyed peers.

In addition to the assessments completed for this project, 22 needs assessments were completed in 2012 through a Planning Grant, resulting in a total of 39 needs assessments performed throughout the region. The 22 assessments completed in 2012 were not limited to DACs. As part of our ongoing work, we hope to complete a comparative analysis to determine whether the needs of water systems in DACs differ relative to non-DAC systems and if so, in what manner.

One of the major benefits of conducting the water system needs assessments, as expressed by the water system operators, was that the process helped each operator to identify problems with, and create solutions for, their water system. Although the assessment itself was relatively brief, the procedure motivated some strategic thinking by system operators. The needs assessments also illustrated possibilities for CRWA to provide subsequent technical assistance, such as helping a water system create a capital improvement plan or emergency response plan. Finally, the needs assessment provided another way for the IRWM Program to make contact with DAC water systems. While IRWMP staff did not attend each needs assessment interview, the IRWMP was discussed during the interview, and in several instances, IRWMP staff reached out to the water system afterwards.



California Rural Water Association Needs Assessment Report ~ Reger 2013 Prepared for Inyo-Mono Regional Water Management Group

Four of these systems had water quality issues due to either arsenic or nitrate contamination in their water supply. Only one of the four is currently at the point where they are capable of providing the technology needed to treat the water. The other three still require additional funding or technical assistance in order to treat their contamination. Seven systems did not have an operating plan that detailed the routine and emergency tasks that must be completed on a regular basis.

The systems that were studied that did not suffer from contamination or loss of records/ personnel almost entirely had issues with aging infrastructure and a need for increased capacity. Very few systems had replaced any or all of their transmission lines in the last ten to twenty years. This is due to the amount of time and money that it would take for this project. In addition, some systems need new or additional tanks to provide fire flow or increase capacity for emergency conditions. Another common need was for metering and electronic control of the pumps (SCADA), which would allow for greater control of the system and faster notification during emergency situations. Three systems need backup generators while one system has an immediate need for a portable generator as they lose electricity on a regular basis and do not have the ability to provide water during a power outage.

The TMF information gathered from each system showed a number of trends. All of the systems had a system area map that showed well and tank locations. Most also had operating plans, general and financial policies, ownership records, water rights, and calculations or records of their current water capacity and usage, and emergency response plans. Common absences were written operator instructions and job responsibilities, water conservation plans, 5-year budgets (although most had at least a one-year budget), meters, and capital improvement plans. It should also be noted that most of the systems that had meters do not currently use them.

It is my recommendation that future funding and assistance efforts focus on emergency prevention for these systems. That means contamination protection, TMF assistance, and repair and replacement of aging infrastructure. It is understood that each of these items is a multi-step process that will require a significant amount of time and effort. However, contamination, broken lines or equipment, or a lack of information could lead to an emergency that these systems will not be able to handle on their own. Prevention is always less expensive than mitigation and remediation.

Needs Surveys

Another aspect of assessing needs was to survey both DAC and non-DAC water systems with regards to their operational, project, data, and information needs. Online and paper surveys were developed to help understand the capacity of water systems given their concerns, needs, and resource constraints; resources that might be helpful for these water systems; projectspecific needs; and interest in data and information related to weather and climate. The surveys can be viewed in Appendix I. The surveys were distributed to every water system in the Inyo-Mono IRWM planning region (approximately 190; there are approximately 75 population centers; some population centers have more than one system; many systems serve entities such as campgrounds or motels), and we received 38 responses. An interesting aspect of the responses was that, even though all systems received paper surveys, about half of the respondents chose to complete the online version of the survey (the other half sent in paper surveys). Survey users were asked to categorize their level of concern with various water system-related issues. Figure 4-2 shows the number of systems that indicated each issue as one of the top three of concern. The top concerns among the 38 water systems were capital improvement funding, aging infrastructure, and water quality issues. These results agree with the findings from the CRWA needs assessments. Further, half the respondents reported that their current rates are not sufficient for both building capital improvement reserves and covering current operations and maintenance costs. Several systems also indicated that they need assistance in determining adequate rate structures.

Another enlightening result concerned the method of receiving information from the IRWM Program. Because, at the time of the survey, internet access was intermittent throughout the region and often of low speed, we had made the assumption that a variety of communication methods, including U.S. Postal mail, was necessary to communicate various types of information. We found that more people would prefer to receive information via the internet and the Inyo-Mono website than other methods (Figure 4-3). Although the sample size was fairly small, there was good representation from the communities that at the time had poorer internet access. This result was eye-opening and indicated that many of the survey respondents had adequate internet access.

The survey results showed a fairly low level of concern about climate change per se, but a higher level of concern about individual impacts of a changing climate, such as drought, flood, and wildfire (Fig. 4-4; several categories may indicate concern about flood). A summary of the weather- and climate-related questions and responses was developed and shows additional results (Appendix I). Responses indicate some concern about changing weather patterns, particularly with respect to precipitation, and aging infrastructure. Systems showed interest in strategies for dealing with drought conditions, such as water conservation programs, changes to rate structures, and alternative energy sources.







Figure 4-2: Issues of concern for survey respondents









The process of sending the survey and receiving responses turned out to be an unanticipated outreach tool. Several entities that received the survey called the Program Office to ask questions about whether/how they should respond to the survey and about individual survey questions. For example, an initial phone call from the Sierra East Mobile Home Park near Coleville resulted in a member of the Program Office attending one of their homeowners' association (HOA) meetings to talk about the IRWMP and answer questions. From there, a relationship was developed between the Program Office and the HOA that continued through the duration of the grant.

Building Capacity

Information derived from the needs assessment exercises, together with our knowledge of water systems in the region, provided the basis from which a capacity-building program was developed. As noted elsewhere in this report, building regional capacity to increase regional self-sufficiency is a long-term and ongoing goal of the Inyo-Mono IRWM Program. Currently, many small systems rely on outside assistance, at considerable cost, to address technical issues in their water system. While we do not expect to train professional engineers within every water system, we do try to provide the means to build some basic skills, such as grant writing, budget development, and water sampling, which will increase the self-reliance of these systems and help them make informed technical and financial decisions. We believe that in order to have a lasting impact in the region, identifying critical needs and providing assistance to help meet such needs are core to our mission.

Capacity building activities took a number of formats during the project period. Much of the capacity building work took place through a series of trainings sponsored by the IRWM Program and delivered by various people and organizations. Capacity building work also occurred through the development of information and resources for DACs and their water systems.

Trainings

The capacity-building training courses that were made possible through this pilot project were one of the most successful aspects of the project. Fifteen courses on eleven different topics were offered by the California Rural Water Association, and eleven workshops on grant writing, mapping water systems, and cost-benefit analysis were offered by Inyo-Mono IRWM Program Office staff and affiliated contractors (Table 4-1). The training topics were determined through several channels. First, the CRWA water system needs assessments results were reviewed by both the Program Office and CRWA to assess pertinent training topics. Second, the Program Office developed a short survey that was administered to Inyo-Mono RWMG stakeholders about what topics were of most interest and relevance. Finally, knowledge of previous needs was used, such as the need for trainings on grant writing and cost-benefit analysis skills.

 Table 4-1: Capacity building training opportunities in the Inyo-Mono Region

Training Topic	Date	Location
Grant Writing and Proposal Development	February 6, 2013	Big Pine
Cost-Benefit Analysis	February 19 & 20, 2013	Mammoth Lakes, Bishop
Utility Management & TMF Tune-Up	July 9, 2013	Independence
Water Conservation & Budget Planning	August 5, 2013	Mammoth Lakes
Regulatory Update & Basic Hydrogeology	September 3, 2013	Bishop
Water System Rates & Rate Structures	October 21 & 22, 2013	Bishop, Mammoth Lakes
Emergency Response and Sampling Procedures	November 14, 2013	Bishop
Water System Rates & Rate Structures	January 7 & 8, 2014	Bishop, Mammoth Lakes
Drought Preparedness & Emergency Response	March 25 & April 8, 2013 April 1 & 3, 2014	Ridgecrest, Mammoth Lakes, Bishop
Maps 101	October 2, 2013, April 1 & 3, 2014	Mammoth Lakes, Bishop
Grant Writing and Proposal Development	April 30 and May 1, 2014	Mammoth Lakes, Independence

All courses were intended primarily for employees and board members of water suppliers to DACs and were offered at no cost to the participants. The objective of providing the training courses was to build capacity within water systems rather than hiring costly outside contractors to perform specific tasks. Attendees communicated that they greatly appreciated the content of the trainings and the absence of fees. The CRWA and mapping courses offered water operators and board members continuing education units, which helped encourage attendance. Although not all of the training sessions were full, enthusiasm of the participants demonstrated that there is a great need for this type of education and that cost is a significant barrier to participation within DACs. As discussed in Chapter 3, these training sessions also became an unexpected and informal outreach opportunity, and IRWMP outreach materials were made available at each training session.

Maps 101: Mapping for Water Infrastructure

The deficiency of water system boundary location information was addressed at a state level by the development of the California Department of Public Health's <u>Water Boundary Tool</u> (<u>http://www.ehib.org/page.jsp?page_key=610</u>), the first web mapping application that aimed to consolidate water service area boundary information for all public water systems in the State of California.

Within the Inyo-Mono region, the lack of water system-specific location and boundary information was brought center-stage when the <u>Digital 395 Project</u> (<u>http://www.digital395.com/index.html</u>) sought to bring broadband internet service to the eastern Sierra. Costly damage to small water system infrastructure occurred when Digital 395 workers

did not have accurate information about water infrastructure location and dug or drilled into water mains and pipes. The needs assessments and surveys conducted through this grant further emphasized the need to map small water systems.

By working through the problems described above, it was determined that training on creating water system-specific geographic information would have the following benefits:

- Prevent adverse impacts to underground infrastructure when improvement projects or maintenance on adjacent utilities occur
- Plan and prepare for emergencies that may impact water systems, such as natural disasters (fire, flood, and earthquakes), chemical spills, and other emergency type situations.
- Help comply with current and upcoming legislative mandates as outlined in <u>AB-54</u> <u>and SB-244</u>
- Conduct important research and analysis about the relationship between drinking water, the environment, and our health
- Increase collaboration and communication among water systems, other public utilities, and planning agencies

In acknowledgement of this need, the Inyo-Mono IRWM Program initiated conversations with Inyo and Mono County Environmental Health, Planning, and GIS departments. County Staff was supportive, and a collaborative effort was launched to bring a Maps 101: Mapping for Public Water System Infrastructure to the region. Though the tool was out of operation for some time, the course introduced the Water Boundary Tool as well as numerous other open-source web mapping tools and applications that complement and work alongside the tool. Students who participated in the course left with all of the skills needed to input their water system service area boundaries into the tool.

This course inspired the Mono County GIS department to offer to extend their secure GIS services to water system managers and operators for additional data acquisition and management purposes. The County is willing to provide a secure web-based interface for more detailed mapping of each water system's infrastructure, beyond just the water system boundary. This private and secure system would also allow for data management and basic queries of infrastructure within the water service area boundary (lines, valves, meters, wells, tanks, etc.).

With respect to broader policy, the need to develop capacity within DACs to improve operation of the water systems that serve them is clear. Perhaps idealistically, one can argue that communities should be able to operate their own water systems. Consequently, the expertise to do so would ideally be developed among members of the community. However, most rural water systems in our region lack an adequate number of customers to create an entrepreneurial opportunity by themselves. This situation of many small systems points to potential roles for managerial and technical consolidation of systems, "circuit riders" to provide technical services, and county agencies assuming some responsibility for oversight. These potential roles for combined capacity-building are discussed further in the recommendations chapter.

Information Development and Dissemination

The second role of the IRWM Program in building capacity of DACs and their water systems was that of providing resources and information on various technical, managerial, and financial topics related to water system operation. As the outreach progressed and relationships were built, more people started turning to the IRWM Program for advice, information, and help on TMF issues. Some of the stakeholders that were initially skeptical of the IRWM process came to understand and even trust the Program. After water providers gained some familiarity with the IRWM Program, especially if they participated in a training opportunity, communication greatly improved (i.e., phone calls were returned and emails answered). This development, combined with our knowledge of the DACs in the region, led us to think about specific resources that we could create to aid water systems in their operations and planning.

During the course of the project, availability of higher-speed internet spread to many communities in the planning region through the Digital 395 project. The improvement from dialup and satellite options has allowed a significant expansion of internet service and thus information dissemination during the course of this pilot project. Although cost of service remains a barrier to many households within DACs, internet service is much more widespread than when the pilot project began. Therefore, the Inyo-Mono RWMG website has become readily accessible to a broader audience and is perhaps the best means of providing information to water-interested stakeholders. Informal feedback received from RWMG stakeholders and members of the public suggests that most water system employees and board members appreciate the information resources available on the inyo-monowater.org website.

Recognizing the important role of the internet in communicating with stakeholders, Program Office staff undertook a minor reformatting of the Inyo-Mono IRWMP website to make it more intuitive and user-friendly and to give visitors easier access to information. One focus of this website work was to develop spatial analyses and maps related to DACs and tribes to use in our portfolio of outreach materials and other publications. This work also included strengthening tools on the Inyo-Mono website to aid DACs in their water system management, such as static maps, interactive mapping tools, and the completion of the online planning documents library associated with the IRWM Plan. The goal of this work was to make the Inyo-Mono website a "go-to" resource for DACs and non-DACs alike, both inside and outside of the region.

We also used the needs surveys described above to develop information about weather and climate patterns. As noted above, interest in climate change as a phenomenon is limited in the region. However, concern over specific issues related to climate change, such as drought, flooding, and erosion, garners more traction among water systems. The grant work spanned three dry years, and by the third year (winter 2013-2014), drought was a very real problem throughout California, including the Inyo-Mono region. We began to gather information and resources regarding responding to drought conditions and made them available on a special drought page of the Inyo-Mono website (<u>http://inyo-monowater.org/drought/</u>). In addition, we developed drought information refrigerator magnets that we provided to several DAC water systems to distribute to their customers (above). These magnets provided information on water

use in the region encouraged and water conservation. Also. Program Office staff gave a talk in the community of Lone Pine about drought impacts specifically in the Owens Valley and how we can contribute the to solution through conserving water. In many places in Inyo-Mono the region, the concept of water conservation is not taken seriously by



ratepayers. For one, flat rates negate any incentive to conserve water. In addition, the antagonistic viewpoint of many people towards Los Angeles results in the idea that "if I don't use the water, it will just get exported to L.A." Thus, one role of the IRWM Program has become to educate the public about actual water use (which, in general in Inyo and Mono Counties, is extremely high compared to the California and national averages), the threats of long-term drought, and water conservation measures. This education includes talking with small water systems about the benefits of water meters, as most small systems in the region are not yet metered.



An additional climate-related capacity-building task focused on communicating the climate change analysis that took place for the Phase II IRWM Plan. Because the needs survey showed that people in the region generally prefer to obtain information via the internet, we undertook development of a series of climate change webinars that were posted on the Inyo-Using the climate change Mono website. analysis in the Phase II Plan (Chapter 3), we broke down the information into several discrete "modules", created Powerpoint presentations for each module, and then recorded videos of Program Office staff presenting the Powerpoints. These 10-15

minute videos were then uploaded to our Climate and Weather webpage (<u>http://inyo-monowater.org/climate-and-weather/</u>), and a notice was distributed each time a new webinar was available. There are four presentations in total, covering climatic changes, climate change impacts to hydrology, water-related climate change vulnerabilities in the region, and water management adaptation strategies.

The final climate change capacity-building activity revolved around assessing water-related greenhouse gas (GHG) emissions in Inyo-Mono DACs. Working with the Sierra Nevada Alliance, we offered all Inyo-Mono DAC water systems the opportunity to participate in an inventory of their GHG emissions. Two systems accepted the offer: Bridgeport PUD and Big Pine CSD. Sierra Nevada Alliance staff worked with water system staff/board members to obtain the appropriate records of energy use along with water production and wastewater treatment data. An initial challenge in performing these inventories (we performed three other inventories through a Round 1 Planning Grant) is that these small water systems are often missing records or have a limited amount of information available. Both of the inventories performed through this grant yielded specific and tangible recommendations for the participating water systems. The inventory summaries, as well as the methodology used, can be found in Appendix J.

Legislation

Throughout the course of DAC grant work, we identified in many communities a significant lack of resources dedicated to knowledge of and compliance with state requirements regarding local water planning and water quality. Many DACs and associated water systems in the region have few staff members, and often the board members for these systems serve as volunteers and have full time jobs outside of their work with the water system. Therefore, many systems and communities have no dedicated staff through which to stay informed regarding new or amended water legislation, water system assessment requirements, or state reporting mandates, and county staff may be too over-committed to provide this information and guidance. These communities are often equally uninformed regarding potentially helpful bills or sources of state grant money aimed at helping DACs. Many new laws and regulations are time sensitive in terms of compliance and carry penalties in the form of fines or ineligibility for state grant funds. Additionally, the rural and sparsely populated nature of the region often means that state and federal representatives devote their time in more densely populated areas having greater constituent representation. As a result of these challenges and with a goal of serving as a source of relevant information to regional stakeholders, the Program decided that providing updates on the Inyo-Mono website regarding pending and newly enacted legislation would be a way to meet this identified regional need. In addition to keeping small systems apprised of changes in an increasingly complex regulatory system, providing legislative research allows counties, water systems, and the IRWMP to work together to gather information necessary for regulatory compliance and grant applications. This type of outreach achieves significant costand time-savings in a region where funding and time are often extremely scarce.

The Invo-Mono IRWM Program began its legislation research by examining bills that either contained new reporting or information gathering requirements, or those that could present additional funding sources for DACs and small water systems. The first bill researched was Senate Bill 244 (SB-244), a piece of enacted legislation that went into effect in 2012. SB-244 is groundbreaking and important in that it forces counties, cities, and county-based Local Area Formation Commissions (LAFCOs) to think about and specifically plan for the needs of their most vulnerable citizens - those living in disadvantaged unincorporated communities. Unfortunately, it also constitutes an unfunded mandate that requires cities, counties, and LAFCOs to incur significant expenses related to compliance without providing funds. Many water systems and small communities in the Inyo-Mono region had not heard of the legislation even as compliance deadlines approached. In order to aid in parsing the legislative requirements and reducing costs, the Invo-Mono IRWM Program Office staff presented summaries and explanations of the bill in several venues over 2-3 months. Additionally, the Program Office is currently working with one county in the region to consolidate mapping, information gathering, and system assessment tasks required by SB-244. The hope is that by truly integrating these efforts, we can preserve some of the limited resources available in the region for other communities and projects.

A particularly interesting piece of legislation, particularly in relation to disadvantaged communities, was recently enacted. A very short law, Assembly Bill 685 has generated a lot of attention, even internationally, by simply stating "It is the policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." It directs "all relevant state agencies" to consider this policy when revising existing or adopting new policies, regulations, and funding criteria. The few additional lines provide some limits on what the act requires of state agencies and water systems.

Since AB-685 (also known as the Human Right to Water) was signed into law in September 2012, there has been a variety of legal discussion about what exactly the law requires and how it may be implemented (e.g., Francis, 2012; Garner and Quass, 2013; Salceda, et al., 2013). The consensus of published legal opinions so far seems to be that the law does not create any dramatic obligations by the State of California or water suppliers. Rather, as state agencies go about their pre-existing administrative duties, this new policy must be considered. When an agency performs administrative actions in the future that might have some effect on provision of water for domestic uses, the agency should use such opportunities to advance the state toward the goal of access to adequate water for drinking, cooking, and sanitation (e.g., Francis, 2012). In the present context of assisting DACs to become self-sufficient in meeting their water needs, AB-685 provides a clear policy directive that future actions by California agencies should contribute toward that goal. There is much uncertainty about how AB-685 will ultimately be implemented and how inevitable legal challenges may influence the administrative processes. A particular unknown is how terms such as "affordable" and "accessible" will be defined.

The Inyo-Mono IRWMP has identified several pieces of pending California legislation related to funding for small community water projects. The first bill, Assembly Bill 115, amends the Health

and Safety Code to allow multiple water systems to apply for funding to address certain drinking water problems as a single applicant. This encourages regional solutions, such as those pursued through IRWM Programs, that have economies of scale and allow larger systems to apply for grants to address issues that affect small DACs. The next piece of pending legislation, AB-21, would create a separate fund to provide grants to solve urgent drinking water problems in DACs. This new fund would eliminate some of the time-consuming application requirements of the State Drinking Water State Revolving Fund, requirements which often prohibit DACs from even applying for money from the fund. If passed, AB-21 could provide much more accessible sources of state funding for many of the Inyo-Mono DACs.

The Inyo-Mono IRWM Program Office reports on pending California water legislation at RWMG meetings, through periodic newsletter entries, and on the Inyo-Mono IRWM website. In addition to research on pending legislation, the Program Office has implemented efforts to share resources and information with local counties in an attempt to aid in compliance with SB-244, which requires cities and counties to identify disadvantaged communities and to document the water, storm water, wastewater treatment and fire protection needs of those communities. Several meetings have been held between Program Office staff and Planning Staff from Inyo County and Mono County. At these meetings, shared information gathering and dissemination tactics were discussed as well as general integration of goals and priorities in the Inyo-Mono IRWMP Plan and their respective County General Plans.

We are currently following several bills, including the pending water bond ballot measure. If funding is secured to continue programmatic activities, we will keep track of these bills and others as they move through the legislative process and be prepared to attend hearings and submit comments in order to further the interests of our region. In addition to the research on pending legislation, we have continued our efforts to share resources and information with local counties in an attempt to aid small counties and cities in complying with Senate Bill 244. By combining information gathering and planning resources, we can make cost effective and integrated decisions for our region.

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Chapter 5: Synthesis and Lessons Learned

Although the primary purpose of the DAC grant project was to inform and advise the California Department of Water Resources about DAC engagement in IRWM planning, both the Inyo-Mono IRWM Program and individual DACs in the region also benefitted immensely from these efforts. Below we provide a description of those secondary outcomes and lessons learned before presenting a set of recommendations in the next chapter.



Inyo-Mono as a rural, sparselypopulated, remote, mountain, and headwaters region

As discussed in Chapter 1, the Inyo-Mono IRWM DAC pilot project focused specifically on rural disadvantaged communities in a remote, sparsely-populated, headwaters region of California. We believe that the lessons learned and recommendations from this project can be applied in other parts of California with similar kinds of communities, such as most of the Sierra Nevada and much

of Northern California. From this project, we have learned that rural and remote California geographies are dealt with poorly by the Census, and thus the data available likely do not capture all of the true disadvantage. Another aspect unique to rural DACs is the limited access to technical, managerial, and financial resources. This project has attempted to not only document and understand challenges of DACs in the Inyo-Mono region, but to also begin bringing resources to these communities and building their capacity towards self-sufficiency.

Although the Inyo-Mono RWMG has been committed to outreach and an open, transparent process from the inception of the Program, this grant allowed us to pay extra attention to the disadvantaged communities (including Native American Indian tribes) in the region and focus specifically on their issues. Doing so has taught us that, in a rural headwaters region such as ours, it is necessary to consider DAC issues in addition to all other issues in order to gain a comprehensive picture of water management in the region. Indeed, the RWMG has decided for itself to give high priority to DAC/tribal water issues and project needs and has prioritized DAC/tribal projects at the top of the list for the various rounds of Prop. 84 funding. Of the 10 planning and implementation projects that have been funded thus far, five are located in DACs.

Through the course of the project, we came to realize that, for the Inyo-Mono IRWM region (and perhaps other regions like it), DAC and tribal outreach is not so much different from other types of outreach. For one, most of the communities in the Inyo-Mono region, even if not technically economically disadvantaged, are still small and rural and face similar challenges as DACs in the region. While it may be self-evident, a major lesson was that it is imperative that those reaching out have a basic understanding of the target community and that they continue to learn about

the community and its people throughout the outreach efforts. For example, we learned that the appropriate way to request that tribal staff become involved in the IRWM process is to present information about the IRWM Program to the tribal council at one of its regular meetings, rather than go straight to the tribe's environmental department. Similarly, we attended some public meetings in communities in eastern Mono and Inyo Counties without fully understanding the history of water issues there and found significant resistance to the IRWM concept. Cultural sensitivity and understanding are critical to successful engagement.

Community-specific knowledge is also important when determining the logistics of outreach – where, when, how, and whom to meet with. We found that for most DACs, meeting in the evenings was preferable as most of the residents have day jobs. However, at times it was possible to meet with older, retired members of the community during the day. We also found that accessing the community through its water system (or other established channel, such as regular community meetings) was usually more successful than holding open, public meetings using broad solicitations. The Inyo-Mono website also proved to be a more effective outreach tool than originally thought, given the limited Internet resources in the region.

An aspect of many disadvantaged communities in California that does not appear in most Inyo-Mono DACs is a large proportion of Latinos. The largest Latino population occurs in Mammoth Lakes, which is not a DAC. However, SB-244, described in the previous chapter, provides for a more nuanced consideration of DACs, such as legacy communities and areas within non-DACs that may be disadvantaged. The IRWM Program will continue to work with the Counties on SB-244 to identify these disadvantaged "areas".

What may be particularly important with DACs and tribes, though it is important for any targeted community, is to be consistent and persistent in communications and follow-up. Especially for DACs, many of the water systems have limited or no staff and an all-volunteer board, most of whom work other jobs during the day. People do not have time to be making several phone calls and requests for assistance. Thus, as the IRWM Program, it is important that we respond quickly, and make contact on a periodic basis to follow-up on issues and offer assistance, and be available to these communities during times other than traditional working hours. This kind of consistent communication helps to build and solidify relationships, which can then be called upon for both the community's and the IRWMP's benefit.

A unique aspect of water management in the Inyo-Mono region, though it does occur elsewhere in California, is the seasonal fluctuation in population. In addition to supplying water to permanent year-round residents, many of the water purveyors in the Inyo-Mono region must also consider demand from transient short-term visitors. A significant fraction of the water systems in the region serves only transient use, with the most obvious example being the dozens of campgrounds in the region. However, several of the towns and communities also have significant fluctuations in their short-term population and, consequently, in water demand. The most dramatic case is Mammoth Lakes, where the resident population is about 8,200, but the instantaneous population on weekends and holidays often increases four-fold for short periods (Kattelmann and Dawson, 1994). In summer, much of the landscaping around houses and condominiums is irrigated regardless of occupancy and accounts for significant demand. The large seasonal and day-to-day variations in population create an unusual set of problems for water supply and sewage disposal compared to communities with relatively stable water demand (Mammoth Community Water District, 2005 and 2011). Although the town of Mammoth Lakes is not a DAC, many of the neighboring smaller communities share similar resident versus transient demand issues. One way in which we have started to understand these variations in water use is through greenhouse gas emissions inventories (see previous chapter). Otherwise, such fluctuations based on population variability have not been quantified. Owners of second homes and visitors renting commercial lodging in these communities obviously have fewer vested interests in the water utilities than residents and are less likely to support investments in the water systems. Incomes of second-home owners are also likely to be substantially higher than those of year-round residents but are not counted toward community MHI, further complicating the identification of DACs.

Making a Difference

As we progressed through the work of the project, we began to see the positive impacts of our efforts, both within the region and outside of the region. At the beginning of the grant project, the Inyo-Mono IRWM Program was about three years old and was still proving its worth among some of the more skeptical communities in the region. The DAC project allowed Program representatives to be very visible in the region's disadvantaged communities and to spend time on building relationships. This consistent communication with stakeholders, together with the



more tangible successes of the IRWM Program (namely, grant awards), helped to build a positive reputation for the IRWM Program as a go-to resource for regional water management and planning issues. Similarly, the practice of gathering stakeholders on a regular basis for RWMG meetings, which include DACs, tribes, and non-DACs, allows for relationships among stakeholders to develop, which has benefitted all parties.

After six years of discussing water issues with the major water players in the region, including DACs and tribes, the IRWM Program is now seen as a primary resource within the region for information, funding opportunities, assistance, and networking. Water systems, community representatives, and even local elected officials now regularly turn to the IRWM Program for help. The experience we have gained in working with DACs is also shared outside of the region. We continue to converse especially with other Sierra Nevada IRWMPs that have high proportions of DACs. We also share this knowledge in more public fora, such as regional and state water meetings (including the 2013 IRWM Conference), and are increasingly being called upon by IRWMP practitioners throughout the state to share our knowledge and give advice (such as at a Center for Collaborative Policy seminar on communicating with disadvantaged

communities). While we do not claim to have an understanding of all DACs in the state, especially those in more densely-populated and more urban areas, we do believe the work performed through this grant has given us insight on the involvement of rural DACs and small water systems in IRWM. It is easy for these communities, especially those that are located far away from cities and/or the state capitol, to feel isolated and neglected by state agencies. We have found that the IRWM Program can help deliver information from the State to these relatively isolated communities, and that the Program can help raise the voice of these communities in Sacramento.

The Inyo-Mono IRWM Program will continue to be a voice for, and advocate on behalf of, DACs and tribes in the region when it comes to water management and planning. The Program is working to determine how the 2012 Human Right to Water legislation may be employed to ensure access to reliable and safe drinking water to all people in the Inyo-Mono region, but particularly to DACs and tribes. It is as of yet unclear whether the law will be able to help DACs and tribes in specific ways, such as funding, but we intend to closely track grant and other assistance programs to ensure they abide by and promote the Human Right to Water.

One criticism that has been directed at the IRWM Program, particularly in regions with many isolated communities, is that State funding for water projects should not be provided to those who choose to live in rural, remote communities. A further criticism is that per capita or per water supply unit, projects in rural, remote areas are more expensive. Regardless of the arguments' validity, the reality is that the new Human Right to Water legislation does not differentiate that right based on what community people live in, nor does it dictate a cap on how much water-related funding can be spent per person. Water scarcity and economic disadvantage arise in the Inyo-Mono region partly from the transfer of water out of the region to urban areas. It is reasonable that State policies for funding should seek to remedy inequities resulting from water transfers that support the overall economy of the State. Therefore, we will continue working on behalf of those rural, remote communities, regardless of the reasons people live and work there.

Chapter 6 : Recommendations

These recommendations were prepared with a fundamental goal in mind: rural, economicallydisadvantaged communities, and the water suppliers that serve them, should build the capacity to become self-sufficient with respect to water management and planning within the next decade. Progress toward that goal will require significant investment by the state of California as well as changes in policies and approaches by various agencies at the state and county levels, and by communities themselves. It will also require commitment on the part of IRWM regions to continue to identify and address critical water needs in partnership with relevant agencies and stakeholders.

Each of the numbered recommendations is organized in the following manner: a summary statement in large **bold black** type, suggestions to specific agencies or entities whereas the target agency is <u>underlined</u>, and then in <u>blue italicized text</u>, a general context or background from this pilot project that provide justification for the recommendation.

1. DWR-IRWM Proposal Solicitation Packages and Grant Reporting

Disadvantaged communities wishing to obtain funds from the IRWM grant program should be subject to streamlined and more efficient requirements in proposals and less cumbersome requirements with respect to grant administration while maintaining acceptable fiduciary accountability.

DWR-IRWM Program: The IRWM Program should continue to refine its program preferences and other special treatments for DACs within its overall grant program. For most DACs to have any chance at competing with well-funded applicants, further streamlining of requirements intended to help DACs appears warranted. Consideration of the expanded use of the 2014 SWRCB Interim Emergency Drinking Water grant application process (or other streamlined standards, such as the Prop. 84 IRWM Drought Round) should be a priority for DWR in future rounds of IRWM funding. Furthermore, DWR should make available to DACs funding for project planning that then leads to project implementation.

The requirements in the Proposal Solicitation Packages (PSP) developed by the DWR-IRWM Program have generally been found to be overwhelming and intimidating by most water supply entities serving DACs and tribes in the Inyo-Mono IRWM region. The background and expertise of employees and volunteers of small rural water providers are quite different than those commonly found in large urban water suppliers, and the expertise of DWR staff that creates the PSPs is likely to be more similar to that of the larger utilities and water districts. The average cost to prepare a Round 1 Implementation grant application was more than \$110,000 (2011 Roundtable of Regions survey). In contrast, the Round 1 Inyo-Mono proposal, which requested 40% of its grant funding for DACs and was initially awarded \$0, cost about \$48,000 to prepare and did not use grant writing consultants. With respect to engineering expertise, experience in proposal development, or financial capacity to hire external consultants, DACs are at an extreme disadvantage.

In 2014, the SWRCB implemented an interim emergency drinking water grant program that targeted the needs of disadvantaged communities to access safe drinking water. The proposal solicitation requirements were feasible and practical while meeting the accountability requirements that state agencies are mandated to maintain. This particular grant process should serve as a model for providing funding to DACs through IRWM grant opportunities.

After a Proposition 84 grant is awarded, the grant administration requirements place additional burden on DAC project proponents. From contracting to invoicing to gathering appropriate materials for reporting, current grant administration standards require a significant amount of time and expertise (or a steep learning curve), both of which most disadvantaged communities lack.

2. DWR-IRWM Grant Program Specific to DACs

A specific grant program that is dedicated to assisting DACs and designed from the start to accommodate the special needs and challenges of DACs may be a more efficient process than attempting to alter requirements and provide program preferences within an existing IRWM grant program. Criteria for such a program should ensure that all types of DACs (rural/urban, remote, headwaters/downstream, etc.) are represented.

<u>DWR-IRWM Program</u>: A completely new grant program designed solely to assist water/wastewater suppliers to DACs should be considered. Such a program could mirror the 2014 SWRCB's Interim Emergency Drinking Water grant program or the IRWM DAC pilot project program. DWR should consider making funding available on an up-front basis, rather than on a reimbursable basis.

If the State of California is serious about assisting DACs in providing reliable water of adequate quality or at least bringing their water systems into compliance with drinking water standards, then a separate program targeted only at DACs may be warranted. Attempting to adjust the general PSPs or including concessions for the potential advantage of DACs may be much less effective than a dedicated grant program for DACs. The grant program that funded this and other DAC Pilot Projects is an example of and potential model for future programs targeted at DACs. Such a funding program should take care not to exclude different types of DACs, such as rural and/or remote communities.

DACs have many challenges to overcome for an IRWM project to be funded by DWR. In addition to meeting the PSP and grant administration requirements, DACs have difficulty in having sufficient funds available for costs associated with project activities when reimbursement of project costs by DWR may not occur for a period of six to twelve months. The reimbursement process currently in place discourages DACs from IRWM funding because projects become infeasible to implement. DWR should design a more streamlined process for project proponents to have access to funds so that DACs can afford to use IRWM dollars.

3. Outreach and Increasing DAC Involvement in IRWM

Disadvantaged community outreach in IRWM regions should be recognized as a process that takes time, persistence, follow-through, and communityspecific knowledge. There is not a one-size-fits-all approach. DAC outreach should be considered an ongoing need.

<u>DWR</u>: The IRWM website should add some basic information and suggestions with respect to DAC outreach under its grants resources page. (<u>http://www.water.ca.gov/irwm/grants/resourceslinks.cfm</u>) DWR should continue to set aside IRWM funding to support DAC and tribal outreach. In addition, through its IRWM Program Guidelines, DWR should encourage open and inclusive governance structures that allow for equal participation by all stakeholders, including DACs and tribes.

IRWM regions: Outreach should be an ongoing priority and practice, particularly to DACs and tribes. Follow-up and follow-through should be the cornerstones of DAC outreach. In addition, IRWM groups should develop open and inclusive governance structures that allow for equal participation by all stakeholders, including DACs and tribes.

<u>**Pilot project strategy retreat</u></u>: Projects should summarize what they learned about how to conduct successful and meaningful DAC outreach in a manner that could be used on the IRWM website. Furthermore, recommendations should be consolidated and employed to affect change for improving DACs' abilities to meet their water-related challenges.</u>**

In this project, a variety of outreach techniques was used in attempting contact and engagement with DACs and tribes in the Inyo-Mono region. Overall, more general/public/open outreach meetings were not well attended. These events were advertised publicly and were held in the evenings, but it seemed difficult to entice representatives from DACs to leave their homes at night to come to a loosely-defined meeting about water. It is unclear whether this lack of participation was driven by apathy, lack of time, poor advertising, water as the subject matter, etc.

Instead, we found that more targeted outreach meetings with individual communities or water systems were more successful and useful for all parties involved. Such meetings took place at a time and place of the targeted community's choosing, often in conjunction with a regularly-scheduled meeting, such as a water system board meeting or a regional planning advisory committee meeting. Inyo-Mono Program Office staff traveled to the community, regardless of its location within the region. The community was given opportunity to express its water-related concerns and challenges, and the IRWM Program was able to provide information about its processes and resources. These meetings were often held at night so that working community members could attend. DAC representatives were always grateful that IRWMP staff members were willing to travel to the community and give attention to the community's water issues. Participation in daytime Regional Water Management Group meetings is difficult for many DACs. Overall, these one-on-one outreach meetings helped to build relationships that would otherwise result from attendance at RWMG meetings.

At times, it was challenging to make first contact with a community to schedule a meeting. An understanding of the target community's culture and population is critical in order to develop trust and build relationships. It helped to have a current RWMG stakeholder who is involved with the target community make an initial contact and then introduce IRWM Program Office representatives. Sometimes that RWMG stakeholder would even attend a first meeting between the community and the IRWMP. We also found that repeated contact and outreach was needed with some communities in order to build rapport and trust. Not every contact had to be in the form of a formal outreach meeting. Since most of the communities in the Inyo-Mono region are very small, it is common to see stakeholders in other settings. These informal meetings provided another opportunity to talk and get to know each other. Another unexpected venue for meeting DAC representatives was the various capacity-building training events held through DAC grant.

We also learned that building relationships with stakeholders required maintaining ongoing contact and responding promptly to questions and requests for information and assistance. It is through this follow-up communication that the relationship is solidified and maintained.

Throughout the grant period, we came to see the IRWM Program as a central information resource for water issues in the region. As relationships were built, particularly with representatives of DAC water systems, more people started contacting the Program Office with questions or requests for assistance. We were able to fulfill some requests in-house, such as a request for guidance on what kind of GPS to purchase. For many other questions, we were able to point them in the right direction to find an answer or provide them with contact information for someone who could provide an answer.

Recognizing that special effort is required to engage DACs and tribes, DWR should recognize the financial challenges that IRWM regions will encounter in assigning staff to conduct this work, and consider funding streams dedicated to implementing the kind of outreach effort we have identified as necessary.
4. Ongoing Professional Technical Assistance / Advocate

Water/wastewater system-specific, individualized technical assistance should be made available to DACs either locally or through professional "circuit rider" positions to help determine needs and decide how to bring resources to address those needs, particularly in rural regions and geographically-isolated communities.

<u>Regional IRWM Groups</u>: Regional groups should encourage water suppliers to DACs to conduct needs assessments and then attempt to provide technical assistance for solving identified problems. Each region should identify the most appropriate means of providing technical assistance to their DACs, including maintaining a list of professionals and companies capable of providing such services. Where demand exceeds supply, the regional groups could request financial support from DWR and SWRCB to encourage business interest in getting started to provide such services in a particular region.

<u>DWR and SWRCB</u>: These two agencies should consider creation of a funding program to allow regions (or perhaps aggregations of regions initially) to hire personnel (either locally or in a "circuit rider" capacity) that can provide technical assistance to water suppliers for DACs.

An approach successfully used on a limited basis in the Inyo-Mono IRWM Region is an individual or small firm providing services to several water systems, such as providing guidance on project development and/or funding. The National Rural Water Association and its state associations have provided technical assistance via traveling specialists based on the "circuit-rider" concept of the 1800s that served isolated rural communities that did not have sufficient demand for certain professions on a full-time basis. The DWR-IRWM Program and other state agencies should encourage more thorough development of the "circuit-rider" method of sharing services among small water systems through subsidies or start-up grants or loans to small businesses interested in providing such services. Another example is the facilitation services that DWR made available to many nascent IRWM regions. Such assistance on a short- or medium-term basis can be very valuable. Information about particular needs for services can be gathered from needs assessments, project proposals within each IRWM region, and development and revision of a region's IRWM Plan.

As a part of this pilot project, the California Rural Water Association visited 17 DAC water systems to conduct system-specific needs assessments. These exercises were highly useful in evaluating the current status of operations as well as needed improvements in DAC water systems in the region. In addition to the formal reports of the CRWA, water system operators told the IRWM Program that the process of the needs assessments helped them to identify problems with and consider solutions for

their water systems. The needs assessments also pointed to ways in which CRWA could provide follow-up technical assistance, such as working with a system to develop an emergency response plan or a drought management plan.

In addition to professional technical assistance from entities like CRWA or the Rural Community Assistance Corporation, providing general support to DAC systems from the local IRWM Program, with an eye to building capacity, is important. This assistance might include answering general questions about operating water systems that do not require engineering expertise, connecting DAC water systems with other water systems that can provide assistance, providing information about funding sources, creating and maintaining an online set of information resources, managing an education program, reviewing IRWM materials with respect to impacts on or participation by DACs, and acting as an advocate (or perhaps ombudsman for handling complaints if necessary) for DACs within the IRWM Program. The Inyo-Mono IRWM Program Office has been able to partially fulfill this role through the DAC grant. Moving forward, this assistance could be made available as a part of other IRWM programmatic duties, or if the demand and resources permit, could come from personnel specifically hired for this purpose.

5. Data Reporting

Efficiencies would be realized if data reporting standards compatible with regional Data Management Systems were communicated to all parties prior to signing contracts for work using IRWM funds through the IRWM program.

<u>DWR-IRWM Program</u>: DWR should encourage IRWM groups to establish data reporting standards for contract work prior to work being performed using IRWM funds.

IRWM regional groups: Regional groups should communicate data reporting preferences/requirements to members, employees, contractors, and cooperators prior to the award of contract and the commencement of IRWM-related work. Providing a sample template or written instruction for data reporting would prove cost-effective in the long term by ensuring data reported are compatible with local Data Management Systems and the updated IRWM Plan Standard.

Throughout the DAC pilot project, we collected and worked with many types of data, from demographic information and basic water system information to water quality test results and spatial water system data. We found that data were supplied by contractors and agencies (such as California Rural Water Association and county Environmental Health Departments) in a wide variety of forms and formats. Considerable time and work was invested to extract these data from the format submitted and convert them into an appropriate data format for analysis (database, GIS, etc.).

IRWM groups should be encouraged to establish basic data guidelines or standards that

would help with subsequent data organization and analysis. For instance, simply creating Excel workbooks with some basic guidance as to data compatibility with local data management system structure instead of receiving data in pdf files would help to avoid spending a great deal of time on data conversion and transformation efforts.

6. Expanded Identification of DACs in Rural/Headwaters Regions

In addition to the current income-based definition of DAC, alternative methods of identifying DACs should be examined as consistent income data are not available for all communities, especially those in rural and sparsely-populated regions. We encourage the use of a rapid-assessment approach in which information is collected directly from a community to help determine its DAC status.

<u>California Legislature</u>: Future legislation should allow agencies to define DAC status by alternative means at least in parts of the state where Census-based income data are not available or insufficiently represent the community of interest, or it should consider an expanded statewide definition.

<u>Governor's Office of Planning and Research</u>: In partnership with IRWM regions, OPR should study alternative metrics for designating DAC status and determine whether DAC status is stable enough to permit establishing a long-term list of DACs rather than the current situation of needing to justify DAC status with each application for funding.

<u>State Water Agencies</u>: At a minimum, state agencies should not limit the designation of DACs based on the CalEnviroScreen methodology. If it is to be used, alternative criteria need to be considered to ensure all disadvantaged Californians have access to funding opportunities that employ the CalEnviroScreen criteria.

<u>California Environmental Protection Agency:</u> While refining the CalEnviroScreen tool, CalEPA should recognize that communities facing "multiple pollution burdens" do not include many disadvantaged communities in California. Changes to the tool should focus on criteria benefiting "areas with concentrations of people that are of low income, high unemployment, low levels of home ownership, high rent burden, sensitive populations, or low levels of educational attainment" (Health and Safety Code Section 39711.a.2).

In the Inyo-Mono IRWM region, it is not possible to identify the DAC status of all communities for two reasons. First, census-based MHI data are not available for all census-designated geographies in the region. Second, census-based geographies do not always match up with communities of interest, such as water system service areas or fire protection districts. This project examined a number of easily determined indicators that may be correlated with DAC status and may serve as proxies or substitutes for MHI. Although no definitive indicator(s) have yet been identified, the

proportion of single-story houses in a community is the most closely correlated with median household income. Further refinement of the method is needed, but it is likely that the type of rapid-assessment approach presented here would be more cost effective than formal surveys to determine MHI in areas where data are insufficient. These early results are considered valid for rural, sparsely-populated headwaters regions, but they may not hold for more urban and heavily-populated communities, where census data may be more complete. We encourage additional funding to carry on this investigation both in the Inyo-Mono region and in other parts of the state. Recommended next steps to continue this metrics analysis include:

- conduct additional community surveys in the Inyo-Mono region and perform the same set of analyses again; and
- conduct these community surveys in and collect ACS data for other rural, sparsely-populated parts of IRWM regions to see if the results hold outside the Inyo-Mono region.

Although DWR and other state agencies are currently required to use the MHI criteria for defining DACs as directed by the legislature, alternative or supplemental definitions should be sought and implemented in the future. However, the CalEnviroScreen tool, which is being used increasingly by state agencies to define DAC for funding purposes, is a restrictive method for designating DACs due to its very limited applicability to rural, headwater regions throughout California. We recognize the robustness of this tool, given that it incorporates 19 indicators into its index of pollution burden and vulnerability; however, we contend that it does not adequately reflect all types of disadvantage in California and recommend against its use for designating DAC status, particularly in rural areas.

7. Update Boundaries of Census Designated Places

Geographic boundaries that represent practical communities of interest can be distinctly identified for the next census through an existing Census Bureau process.

<u>Counties</u>: County planning agencies should coordinate with the U.S. Census Bureau at the next opportunity (2017 or 2018) to revise the geographic boundaries of particular communities of interest as Census Designated Places.

As mentioned in Recommendation 6, census-based geographies often do not correspond to communities of interest. Communities or districts that are not correctly delineated in the current census geographical data may be unable to prove their DAC status and take advantage of DAC-targeted funding opportunities and other programs. Within one CDP, many small communities may be lumped in with their larger neighbors that are quite different demographically and may be many miles away. Furthermore, even when geographical delineations are suitable, basic data collection by the Census

Bureau may be limited or absent. For many reasons, it seems that it is strongly in the interest of affected communities and their counties to take advantage of the Census Bureau's opportunities to designate geographical boundaries.

In 2017 or 2018, the U.S. Census Bureau is likely to offer another opportunity to modify the boundaries of their smallest unit for which Census and American Community Survey data are aggregated and reported, the Census Designated Place, or create new units. Local jurisdictions, such as counties, have been able to work with the U.S. Census Bureau in 1998 and 2008 through the Bureau's Participant Statistical Areas Program to change or create Census Designated Places that are of direct use to local agencies. We encourage county planning departments to prepare for and take advantage of the next such opportunity by contacting the Census Bureau before 2017 and learning about this decade's procedure. Information about this program can be found at: https://www.census.gov/geo/partnerships/psap_overview.html

8. Communicating Information to DACs

In rural, sparsely-populated regions, such as the Inyo-Mono IRWM region, a variety of communication techniques should be used to provide and present information to DACs and their water systems.

IRWM regional groups and local agencies: Communication should be carefully tailored to local conditions and communities of interest. Cultural norms should be respected at all times. Again, there is not a one-size-fits-all approach to DAC outreach.

At the beginning of the DAC grant (2011), many communities in the Inyo-Mono IRWM region did not have consistent or high-speed internet access. Although the Digital 395 project should bring high-quality internet access to many of these communities, it will take time for residents to adopt this new communication method. The Inyo-Mono IRWM Program took time through the grant to understand the best ways of communicating with DACs in the region. For certain information, such as water system-specific surveys, paper copies were mailed to communicate information to their customers. Yet the bulk of communication did take place via the internet (using email and the Inyo-Mono website). Feedback received through the surveys indicated that the best place for water system representatives to access information on topics such as climate change and grant opportunities is through the internet.

9. Consider Native American Tribal Governments and Communities as Distinct from DACs

Although in some cases, Native American tribes are disadvantaged communities based on the MHI criterion, California agencies and IRWM groups should continue to consider and treat Native American tribal

governments and communities independently, given their sovereign nature.

<u>State and Local Agencies</u>: All government agencies should establish policies that recognize tribal sovereignty in any interactions with tribal governments and communities. DWR's policies may serve as a model.

Regional IRWM Groups: Local IRWM practitioners in regions that include tribes should be more explicit in recognizing tribal sovereignty. Outreach and engagement strategies should pay particular attention to cultural norms and practices. Furthermore, IRWM governance structures should explicitly encourage and allow for equal participation in decision-making by tribal governments.

In the Inyo-Mono IRWM region as well as at the Sierra Water Work Group summit meetings, we were consistently reminded by tribal representatives to recognize tribal sovereignty and not regard tribes as "just another DAC". Although many tribal communities may be classified as DACs via the MHI criterion, state and local agencies need to maintain a clear distinction. Executive Order B-10-11 was signed by the Governor to reaffirm the unique status of Federally Recognized Tribes and other California Native Americans and encourage appropriate communication and consultation between State agencies with California Indian Tribes. As a result, DWR has been careful to clearly distinguish tribal governments, and other agencies should follow its lead. DWR should strongly encourage regional IRWM groups developed out of the IRWM Program to adhere to Executive Order B-10-11.

Also, because of the sovereign nature of federally-recognized tribal governments (the majority of tribes in the Inyo-Mono region are federally-recognized), it is necessary for other government agencies within IRWM regions to work with tribes on a government-to-government basis, whether through an official consultation or other process. It should be recognized that each tribal government is a sovereign entity, and that tribal government structure, policies, and procedures differ between tribes. It is also necessary to seek tribal involvement and engagement in IRWM through appropriate channels, such as appearing before a tribal council to provide information on the IRWM Program and request the tribe's involvement. IRWM groups should use lessons learned from other IRWM groups that have previously done tribal outreach.

10. Water System Education

Water system-related trainings may be a key part of a DAC outreach strategy and should be made available to DACs in a way that is tailored to their needs: at no charge, with travel assistance or close to the community, during convenient days/times, covering relevant topics, and offering continuing education credits when feasible. **<u>DWR and SWRCB</u>**: These two agencies should consider creation of a funding program to support training and subsidize DAC participation in such technical training courses. Such a program could consist of scholarships for individuals to attend training sessions or contracting with a provider of such educational programs to provide training locally.

<u>Regional IRWM Groups</u>: If state funding were made available, regional groups could administer and organize local educational opportunities and/or scholarships for training sessions outside of the region.

The capacity-building training courses that were made possible through this pilot project were one of the most successful aspects of the project. All courses were intended primarily for employees and board members of entities supplying water to DACs and were offered at no cost to the attendees. The intention of providing the training courses was to build capacity within water systems rather than hiring expensive outside contractors to perform a specific task. Participants greatly appreciated the content of the trainings and the absence of tuition. The CRWA and maps trainings offered water operators and board members continuing education units, which helped to boost attendance. Although not all of the training sessions were fully attended, we learned that there is a great need for this education and that cost is a significant barrier to participation.

The DWR-IRWM Program can assist in helping regions with DACs by allocating funds to continue subsidized training for water suppliers from DACs. The nature of such subsidies could be in a variety of forms: scholarships with travel funds to training sessions around the state, sponsorship of training sessions in rural areas (as was the case in this pilot project), hiring of trainers to visit a particular water purveyor to educate all staff and board members at one time, payment of fees to participate in on-line courses, and development of on-line training courses on topics currently not available.

11. Shared Technical Assistance and Services

Regional water management programs should facilitate the sharing of knowledge, resources, and expertise among small water systems, larger water systems, and local businesses to address technical and managerial needs. In addition to sharing information within regions, it is important to begin to share information among IRWM regions as well.

<u>Regional IRWM Groups</u>: Regional groups should promote sharing of technical expertise, specialized equipment, and other assets among their members, and, where appropriate, with other IRWM regions, by identifying the resources, their potential availability, and the cost of providing that information.

One of the consistent needs identified by DACs in our region is various professional

services on a short-term, intermittent basis, such as engineering, construction, legal expertise, accounting, mapping water system components, and managerial skills. In small water systems, the demand for such services is low - usually a few hours per month at most - and can vary considerably from month to month. Small-scale water purveyors generally hire consultants at significant expense or do without the service. We envision that as IRWM groups mature, member water systems will begin to cooperate and collaborate in the sharing of resources and skills for mutual benefit. Some of the water systems in the Inyo-Mono region with particular expertise on their staff already provide professional services to smaller systems on a fee-for-service basis. This issue is one of the arguments in favor of water system consolidation.

12. Consolidation

Entities working with DAC and small water systems should give more serious consideration to water system consolidation. Small water systems should consider merging at least part of their operations with neighboring systems to distribute costs among a larger customer base and take advantage of economies of scale. Regional IRWM groups and state agencies should explore ways in which they may be able to help facilitate consolidation. In a rural region, where many of the systems are managed and/or operated by volunteers or shared water operators, such consolidation would result in a minimal loss of jobs.

Local Water Providers: Small water systems should identify portions of their operations that are disproportionately costly and that could possibly be combined with another system to realize some economy of scale. Individual operations that could be consolidated include water operator training, board member training, and budget planning, among many others. Small systems should then inform their customers of the financial advantages of combining appropriate operations and act to consolidate those operations.

<u>Regional IRWM Groups</u>: Regional groups should promote consolidation where it can result in more efficient operations and enhance water system reliability by educating their members about prospective portions of water systems that often benefit from consolidation.

DWR and SWRCB: The state water agencies should consider an incentive program to study and implement consolidation of small systems. A targeted grant program could provide financial support for aspects of consolidation such as feasibility studies and legal expenses for combining portions of systems.

One of the long-recognized problems facing small water systems is the inability to achieve economies of scale by spreading fixed costs among a large number of customers. The obvious solution that has been proposed (and occasionally implemented) is consolidation (sometimes called restructuring) of neighboring small systems so that some infrastructure and services do not need to be duplicated. Unfortunately, suggestions for consolidation have traditionally been met by considerable resistance from operators who stand to lose work, and customers who are concerned about a loss of control over their local water system. Also, in a rural, sparsely-populated region like the Inyo-Mono, it may not be feasible for water systems to physically consolidate, particularly if they are separated by unpopulated areas. Nevertheless, consolidation of some services that do not require geographic proximity remains a logical option.

The DWR-IRWM Program and SWRCB grant programs should consider offering financial and other incentives to DACs to evaluate and implement consolidation of small systems. For example, a stand-alone grant program could fund engineering studies of the potential for consolidation. Regional IRWM groups could also help to educate community members from potentially affected systems about trade-offs related to consolidations.

13. Role of Counties

Small water systems in DACs could benefit from greater involvement by county-level agencies.

County Governments: County Boards of Supervisors should consider policies that help water suppliers to DACs in their county become self-sufficient and sustainable. County agencies should assume a lead role, in partnership with regional IRWM efforts, in overseeing the provision of assistance to DAC water suppliers, through grant applications, technical assistance, and information transfer. County governments and planning departments should participate in their IRWM group, especially during general plan amendments and updates.

<u>Regional IRWM Groups</u>: Regional groups should promote the concept of a greater level of county responsibility and oversight regarding DAC water suppliers by hosting discussions among their members about the potential role of county agencies within their region.

DWR and SWRCB: State water agencies should create a grant program for counties willing to improve water supplies for their DACs. Such grants could support expenses such as an additional engineering position in the public works department, or additional Environmental Health staff, dedicated to providing assistance to DACs.

During the initial years of the Inyo-Mono IRWM Program, we have learned that what

DWR has called the "maximum opportunity for integration" appears to occur at the county level of government in this region. Although the county departments of environmental health act as the Local Primacy Agency (under the former California Department of Public Health Drinking Water Program), there are opportunities for a more integrated approach to local water supply issues through combined efforts of environmental health, planning, and public works departments. County governments could assume a new role in facilitating technical, managerial, and financial assistance to water systems serving DACs through their existing functional department structure. Furthermore, to avoid creating an "unfunded mandate" situation, the state IRWM Program could provide grants to counties interested in ensuring adequate water supplies to all their residents. The DWR-IRWM program could also help counties avoid issues regarding tribal sovereignty in cases where a DAC was also a tribal community. DWR could facilitate consultation between counties and tribal governments having to do with water resources management.

In many regions in California, there is also ample opportunity for strengthened partnerships between counties and IRWM regional groups. In addition to ongoing involvement in IRWM, counties should be encouraged to work closely with their IRWMPs during general plan updates in order to identify and address water supply and quality issues resulting from land development. For example, counties can include goals and objectives from the IRWMP as polices and implementation and mitigation measures for potential impacts to water quality and supply. Increased cost of water supply and treatment, which will be borne by the water purveyors, should also be addressed through the general plan update process.

14. Ensuring Adequate Rate Structures

DWR and other state and local water agencies should consider ways to ensure adequate rate structures in DAC water systems, such as providing assistance to perform system-specific rate assessments.

Local Water Providers: Small water systems should begin educating their ratepayers about the true cost of water delivery and treatment and the necessity of adequate capital-improvement reserves. At the same time, these systems should being conducting transparent rate-structure studies to guide the implementation of rates that will ensure capital improvement funds are maintained and overhead and management costs are adequately covered.

Regional IRWM Groups: Regional groups should promote the need to identify and establish adequate rate structures necessary to cover capital improvement funds, as well as overhead and management costs, through workshops and outreach efforts and by prioritizing funding for rate studies.

County Governments: Counties should conduct rate studies on systems under County

control and encourage other water suppliers to conduct rate-structure analyses.

DWR and SWRCB: The state water agencies should consider grants to counties and their DAC water suppliers as incentives to perform financial analyses and modify rates as appropriate. The SWRCB could both require a rate-structure analysis in each decade and provide funds to DAC water systems to complete such analyses. Low-interest loan programs, matching funds for deposits into reserve accounts, and one-time grants provided by the state agencies should be considered as potential incentives for raising water rates for the purpose of improving long-term system sustainability.

<u>California Legislature</u>: Future legislation to modify portions of Proposition 218 that interfere with sustainable operation of small water systems should be considered.

During the initial six years of the Inyo-Mono IRWM Program, we have learned that water delivery is dramatically under-priced in many of the small systems throughout the region. For much of their existence, many water systems have not charged enough to operate efficiently or build capital improvement reserves. Because of the chronic undercharging for water, many water suppliers do not have the necessary funds to maintain infrastructure, replace aging infrastructure, make improvements to their water systems, or employ technically-qualified staff. Pursuing rate increases in small rural communities is politically and socially difficult and is further complicated by provisions of Proposition 218.

As an example of taking a greater role in ensuring adequate water supplies, county governments could require/encourage/assist water systems to perform transparent ratestructure analyses. Because county departments of public (or environmental) health are already established as Local Primacy Agencies (formerly by CDPH) for ensuring that drinking water standards are met by public water systems with less than 200 connections, these departments could help the same systems develop an adequate rate structure that supports the delivery of high quality water. Some state funding would be necessary to avoid an "unfunded-mandate" situation.

The State Water Resources Control Board could both require a rate-structure analysis in each decade and provide financial assistance to water systems serving DACs to complete such analyses. A state mandate would help overcome local political barriers to raising water rates.

The California Legislature should examine Proposition 218, particularly the portions that have proven to be counter-productive by preventing water systems from charging enough to supply adequate drinking water over the long-term. This law has had unintended consequences of allowing capital-improvement reserves to remain inadequately funded, and the legislature should consider amendments to promote sustainable financing of small water systems. An interagency working group composed of representatives of the California Public Utilities Commission, Department of Water Resources, the State Water Resources Control Board, and possibly Regional Water Quality Control Boards might be necessary to advise the legislature on potential changes to Proposition 218 as well as facilitate changes in policy, administration, and financing to achieve the goal of every water system determining an adequate rate structure for long-term sustainability. The California Rural Water Association and the Association of California Water Agencies (and their member agencies) could play important roles in advising how to create a fair and equitable process to implement the rate studies and consequent rate increases.

Obviously, most small water systems that have no, minimal, or under-funded capital improvement reserves will be unable make sufficient rate adjustments to adequately fund a reserve account in a short period of time. To achieve the public policy goal of having all water systems serving DACs be financially sustainable, some interim financial support from the State of California appears necessary. One-time grants, low-interest loan programs, and matching funds for deposits into reserve accounts should be considered. Such programs should involve strict requirements about accounting, reporting, implementation of an approved rate structure, and adequate maintenance and operation of the water system to qualify for such support.

While state and county government can play a large role in helping small water systems implement adequate rate structures, these small water systems also have a critical role with respect to rates. Water system customers may not understand the expenses related to distributing and treating water. Water system managers and operators can work to educate customers about the true cost of water and help set realistic expectations about rates.

Our vision for the future of DACs in the IRWM Program

Though we are privileged in many ways to be residents of the State of California, perhaps the most basic privilege, which is now a legal right – access to safe and reliable drinking water – is often lacking. We hope that through this project, and the recommendations it produced, we not only started making progress on, but also provided direction for, ensuring the provision of adequate water supplies for all Californians. Indeed, we are privileged to work with the communities of the Inyo-Mono region through the IRWM Program and are committed to continued advocacy on their behalf.

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Appendix A: Grant Work Plan

Goals and Objectives of Project

Building on the Inyo-Mono IRWM planning effort thus far, the overarching goals for the Mountain/Headwater Pilot DAC Program are to determine how to most efficiently and effectively identify and engage DACs in such a way that empowers them to more aptly address local and regional water priorities. In doing so, a second primary goal of the Pilot Program is to proactively and comprehensively engage DACs in the drafting and implementation of the Inyo-Mono IRWM Plan. Another goal is to establish an effective mechanism to translate lessons learned from the Pilot DAC Program to other regions sharing similar characteristics throughout the Sierra Nevada and beyond. To achieve our stated goals, we will be addressing the following objectives:

- Determining the means to most effectively identify DACs.
- Determining accurate methods for defining a DAC beyond the mean household income metrics.
- Determining what methods are most effective in engaging DAC's in the IRWM process.
- Determining the means to most effectively identify key water related issues.
- Determining what are the important water related issues in most DACs.
- Determining what are the DAC's constraints on solving their problems, being involved in the IRWM process, and being able to develop projects for eventual implementation (educational, financial, technical, etc.).
- Determining how best to assist with DAC project development to a "conceptual plans & cost estimate" level.
- Determining what methods are available and most effective to assist DAC's in financial and technical O&M needs after projects are implemented.

The original grant consisted of Tasks 1-6 below. After some initial work in Tasks 1 and 2, it was recognized that more opportunity existed to examine alternative means of defining DACs and to create a medium (film) to further explore Inyo-Mono DACs and their connection to water resources in the region. Thus, Tasks 7 and 8 were added to the work plan.

TASK 1: IDENTIFICATION OF DACS

The objective of Task 1 is to identify those disadvantaged communities that have thus far been under-represented in the IRWM process, and to develop an outreach strategy to engage these communities. Task 1 will involve planning and preparation for the Pilot Program. This will begin with development of a synthesis that reviews the work done by the Inyo-Mono Regional Water Management Group to-date with respect to DAC outreach and relationship building in the region. This task will also include a one- to two-day training for Inyo-Mono IRWM staff and stakeholders, as well as staff from other IRWMP regions, to provide insight on furthering communication with and outreach to DACs. An outside entity with expertise on DAC outreach will be contracted for this training. After this initial synthesis and training, a specific strategy for reaching out to DACs will be developed in conjunction with an outside outreach

specialist/facilitator. The more specific work of convening initial meetings and distributing materials will then be undertaken. Based on the results of these meetings, written materials will be developed and disseminated to DACs along with scheduling information for meetings to be held through Task 2. Task 1 includes grant administration.

Task 1 Deliverables:

- 1. Synthesis of efforts to date specific to outreach and engagement of DACs in the Inyo-Mono IRWM Planning process.
- 2. Completion of technical training of Methods and Tools to identify and engage DACs in IRWM Planning processes.
- 3. Completion of a DAC Outreach Strategy to be implemented in Task 2.
- 4. Written materials for dissemination to DACs to use in meetings in Task 2.

TASK 2: OUTREACH IMPLEMENTATION

The objective of Task 2 is to implement a DAC-specific outreach program through meetings with DACs in the Inyo-Mono region and outside of the region. Task 2 aims to not only test traditional outreach and engagement strategies relevant to DACs but also provide the means to explore and evaluate alternative strategies based on the training provided in Task 1. It is expected that a hybrid approach to engaging and addressing the needs of DACs in mountain/headwater settings will be created and utilized. The outreach meetings will be conducted in two phases (within the Inyo-Mono Region, and within other mountain/headwater communities outside of the Inyo-Mono Region): Phase I will involve convening meetings with identified DACs per the outcome of Task 1. Phase II will provide a critically important opportunity to convene a round of meetings with Inyo-Mono DACs with the intent of providing a synthesis of Phase I meetings and to essentially validate data collected based on feedback from the DACs themselves. Inyo-Mono IRWM staff will lead the Phase I and II meetings with support from an outreach specialist/facilitator and that has already established relationships with many stakeholder groups in the Inyo-Mono Planning Region.

Expenses for this task will include staff time, travel expenses both within and outside of the Inyo-Mono IRWM region, and expenses for regional mid-grant workshops (including scholarships for representatives of DACs to attend).

Task 2 Deliverables:

- 1. At least ten meetings with DACs throughout the Inyo-Mono Planning Region and up to six outside of the region focused on addressing Objectives 1-8 above.
- 2. Written mid-grant synthesis of outreach efforts conducted within Task 2.
- 3. Convening of up to four Inyo-Mono region-wide (or sub-region-wide) workshops bringing representatives from DACs together to share, validate, and discuss results specific to Objectives 1-8.

TASK 3: NEEDS ASSESSMENT

The objective of Task 3 is to identify various kinds of resource and technical needs among the DACs in the Inyo-Mono region, in order to better learn how to bring resources to these communities (Task 4). California Rural Water Association (CRWA) working with project staff will provide onsite technical, managerial, and financial needs assessments targeted specifically to disadvantaged communities within the Inyo-Mono region. Project staff will also work closely with DACs in the region and outside the region to determine information needs with respect to climate change, data, and data management. One such example will be the Tribal/EPA Conference in San Francisco, at which Inyo-Mono Program Office staff will present work completed for the IRWM Plan related to climate change. This conference will allow staff to converse with tribes throughout the state (and the western U.S.) about information needs related to water, water infrastructure, and climate change. Disadvantaged communities may not have access to various kinds of data to assist in identifying project needs and implementing priority projects. This task will help to identify information gaps among regional DACs, which will then lead into the capacity building work outlined in Task 4.

Expenses in Task 3 include project staff time, contract with CRWA, and staff travel within and outside of the region as necessary to engage with DACs, tribes, and others representing DACs and tribes.

Task 3 Deliverables:

- 1. Up to 20 CRWA needs assessments completed
- 2. Synthesis of primary needs of DAC water systems and other identified needs of DACs
- 3. Synthesis of climate change and other data-related information gaps among area DACs
- 4. Attendance at and presentation to Tribal/EPA Conference

TASK 4: CAPACITY BUILDING

The objective of Task 4 is to bring resources to DACs in the Inyo-Mono region in the form of capacity building. Task 4 will build upon Task 3 by using the information gathered therein to provide a series of capacity-building workshops to DACs within the planning region. It is recognized that rather than doing the work for disadvantaged communities, it is better to provide training, knowledge, and assistance in order to create the capacity for these communities to address their own needs. The workshops will be topical and may include project development/grantwriting, economic analysis, climate change adaptation, data gathering/data management, GIS development, website development, and CRWA topic-specific trainings. Inyo-Mono IRWM staff, along with specialists in these topics, will lead the workshops and be available on a one-on-one basis as resources for DACs. This task will also include capacity building workshops for Inyo-Mono project staff, such as the leadership exchange workshop provided by DWR.

Expenses for this task include contracts for training providers and topic-specific consultants, staff time, staff travel inside and outside the region, and non-staff workshop/training costs.

Task 4 Deliverables:

- 1. Documentation of workshops, including schedules, agendas, and other materials
- 2. Post-workshop reports, including evaluation of effectiveness and other lessons learned
- 3. Inclusion of workshop results and evaluations into reports outlined in Task 5
- 4. Participation in capacity-building workshops outside of the region, such as the DWR Leadership Exchange workshops.

TASK 5: SYNTHESIS REPORT

The objective of this task is to synthesize information derived from Tasks 1-4 and develop lessons learned with respect to engaging DACs and tribes in the IRWM planning process. Two reports will be drafted. The first report will be an internal document for DWR-IRWMP Division Staff and will include recommendations for reaching out to and engaging DACs in rural/headwaters areas. The second document will be a publication that is made available in an appropriate format to other IRWM planning regions, and anyone else interested in public engagement methods, in order to assist those looking to increase participation and/or provide resources to DACs and other under-served communities.

Expenses in this task will include staff time and expenses associated with report preparation (i.e., printing).

Task 5 Deliverables:

- 1. Final Report completed and delivered to DWR-IRWMP Division Staff.
- 2. Publication of study and results completed for broad distribution to other IRWM Planning Regions and elsewhere.

TASK 6: FINDINGS DISSEMINATION

The objective of this task is to widely disseminate the findings of Task 1-4, 7, and 8 of this project and to coordinate with the other DAC pilot project regions. This dissemination will consist of a series of meetings conducted with various audiences and venues: DWR; Sierra/headwaters IRWM regions; Inyo-Mono DACs, tribes, and other stakeholders; policy and/or academic conferences; statewide meetings; and DAC pilot project regions. The goal of this dissemination is not only to provide the lessons learned in the Inyo-Mono region through this project, but also to interact with other people and stakeholders who focus on public and DAC participation/engagement in order to collaboratively discuss the larger picture of DAC participation in IRWM statewide.

Expenses in this task will include staff time, staff travel, conference expenses such as payments for venues, and scholarships to cover DAC and tribal travel costs to attend this task's meetings and conferences, some of which may take place outside California.

Task 6 Deliverables:

1. One meeting with DWR – IRWMP staff to present project findings

- 2. One-day meeting of Sierra Nevada IRWMPs to focus on DAC and tribal engagement, through the Sierra Water Workgroup
- 3. Presentation of intermediate and final project findings and results at up to two statewide IRWM-focused meetings/conferences.
- 4. Conducting up to five conference calls and up to three in-person meetings with the other six DAC pilot project IRWM regions.
- 5. Presentation of intermediate and final project findings and results at up to two non-IRWM meetings/conferences.
- 6. Regional summit for IRWM DACs, tribes, and other stakeholders to present final results and validate findings.

TASK 7: DEVELOP ALTERNATIVE METHODS TO DEFINE DACS

The objective of this task is to develop an alternative set of criteria to characterize and define DACs and test these alternative criteria in at least 10 communities throughout the Inyo-Mono planning region. The opportunity to develop more comprehensive metrics for defining DACs could assist other parts of rural California in their work with DACs. Knowing that the current definition of DACs based on Median Household Income is a legislative mandate, a second objective of this proposed work is to conduct an analysis of State legislation to determine if and how legislation pertaining to water resources impacts DACs. Based on outcomes of Task 7, a proposal to the State to consider changing this definition based on work done in the Inyo-Mono region will be drafted.

The preliminary metrics and overall findings from this task will be shared with DWR on an ongoing basis. In the end, we hope to have a process that not only works for the Inyo-Mono region but that would be applicable other places in California as well.

Expenses in this task will include staff time and staff travel within and outside the region.

Task 7 Deliverables:

- 1. Synthesis report for DWR discussing the results of legislative review and testing alternative metrics in Inyo-Mono communities.
- 2. Proposal, with recommendations, for the use of alternative metrics to identify and designate DACs for the State's consideration.

TASK 8: PRODUCTION OF DOCUMENTARY

The objective of this task is to produce a short documentary film presenting the water-related needs of DACs in the Inyo-Mono region, as well as opportunities for capacity building, as an example of the critical water issues many rural communities face in California. The video will serve to communicate to a broad audience a message about (1) the importance of water to communities within Inyo-Mono planning region, emphasizing the relation of water to local livelihoods and ecological health; (2) the importance and relationship between rural, headwater regions (source) and distant, urban user regions (e.g., Southern California); (3) DWR's IRWM Program; (4) the Inyo-Mono IRWM Program; and (5) lessons on how to engage DACs in the IRWM Planning process. Once completed, the video will be presented throughout the region as

part of our continued outreach and engagement efforts as part of the DAC pilot project. Project staff will work closely with a professional film crew to develop content and oversee all aspects of the production process.

Expenses for this task will include staff time, a filmmaker contract, travel within and outside of the region, and costs associated with reproducing and distributing the film.

Task 8 Deliverables:

- 1. 25-30 minute video
- 2. Showing and distribution of film to at least 500 individuals

Supplies/Infrastructure

Expenses in this category will include those that support the work on this project: computer supplies, software, telephone and internet bills, office rent, printing, meeting supplies, and office supplies. For the first half of the grant (10/1/11 - 11/30/12; Tasks 1-6), 20% of telephone and internet bills and office rent will be charged to this grant. For the remainder of the project (12/1/12 - 3/31/14; Tasks 1-8), 35% of the expenses listed above will be charged to the grant.

Administration Costs

Administration costs are those costs necessary to support California Trout's (grantee) overall administration of the grant. For this grant agreement, the administration cost will equal eight percent of the grant.

Appendix B: DAC metrics data

Available Census Data

Community	Рор	мні	Pct_HsEd	MedHHvalue	Pct_FoodSt	Pct_HHrent	Pct_HHown	Pct_SingleParent	Pct_UI	CommuteHrs	PctPublicAsstIncome	AvgPersonsHH
Big Pine	1682	57109	90.4%	254100	3.57%	26.3%	76.7%	8.90%	7.6%	0.32	1.7%	2.3
Big Pine Paiute Tribe	262	43214	93.2%	Null	9.38%	Null	Null	Null	Null	0.34	3.9%	Null
Big Pine CSD	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null
Bishop Paiute Tribe	1828	46384	86.3%	Null	18.01%	27.4%	56.0%	46.81%	Null	0.31	6.7%	2.95
Bridgeport	402	75346	100.0%	369400	2.27%	37.7%	62.3%	7.00%	Null	0.45	0.0%	2.18
BridgeportPUD	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null
Lee Vining	333	68167	83.6%	231700	13.04%	49.4%	50.6%	7.06%	Null	Null	0.0%	2.51
McGee Creek	29	Null	86.9%	1000000	Null	4.2%	95.2%	4.76%	Null	Null	0.0%	1.95
Mesa	368	55909	92.1%	Null	0.56%	Null	Null	Null	7.9%	0.34	60.0%	Null
Mono City	78	62708	100.0%	400000	Null	28.6%	71.4%	4.76%	Null	Null	0.0%	2.73
Rovana	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null
Shoshone	33	28750	81.8%	10000	Null	70.6%	29.4%	5.88%	22.9%	Null	0.0%	1.82
Swall Meadows	397	75677	100.0%	639000	Null	8.2%	91.8%	7.14%	Null	1.22	2.9%	2.24
Тесора	101	21806	74.5%	87900	Null	38.0%	62.0%	5.43%	28.3%	Null	0.0%	1.63
Metadata 2006-2010 avg		ivg		2005-2009 avg	2007-2011 avg				2006- 2010 avg	2007-2011 avg	2007-2011 avg	

Community	PctHHVacant	PctWhite	PctLatino	PctBlack	PctNative	PctOtherRace
Big Pine	6.1%	67.9	10.4	0.2	0.1	0
Big Pine Paiute Tribe	Null	Null	Null	Null	Null	Null
Big Pine CSD	Null	Null	Null	Null	Null	Null
Bishop Paiute Tribe	7.9%	0	0	0	91.2	8.8
Bridgeport	14.8%	84.2	25.7	0.2	7.5	0
BridgeportPUD	Null	Null	Null	Null	Null	Null
Lee Vining	12.5%	56.8	43.2	0	11.3	0
McGee Creek	3.3%	95.1	4.1	0	0	0
Mesa	Null	Null	Null	Null	Null	Null
Mono City	3.2%	90.7	21.5	0	0.6	0
Rovana	Null	Null	Null	Null	Null	Null
Shoshone	35.5%	90.3	2.7	0	1.4	2.3
Swall Meadows	0.0%	91.4	2.7	0	1.4	2.3
Тесора	12.9%	79.3	5.3	0.7	1.3	
Metadata		2005-2009 avg				

Alternative Metrics Exercise

Community	TotalHomes	ChainLink	PctChain	MobileHome	PctMobile	SingleStory	PctSS	JunkCars	PctCars	Landscape	PctLandSc	YardJunk	PctYardJunk	RepairNeed
Big Pine	258	113	43.80	83	32.17	238	92.25	8	3.10	250	3.10	8	3.10	6
Big Pine Paiute Tribe	108	67	62.04	56	51.85	108	100.00	18	16.67	61	43.52	30	27.78	4
Big Pine CSD	97	75	77.32	32	32.99	88	90.72	6	6.19	90	7.22	6	6.19	6
Bishop Paiute Tribe	73	52	71.23	25	34.25	73	100.00	19	26.03	35	52.05	28	38.36	13
Bridgeport	120	55	45.83	36	30.00	87	72.50	13	10.83	61	49.17	9	7.50	25
BridgeportPUD	88	47	53.41	27	30.68	66	75.00	9	10.23	43	51.14	6	6.82	22
Lee Vining	64	23	35.94	20	31.25	49	76.56	3	4.69	42	34.38	9	14.06	10
McGee Creek	17	1	5.88	7	41.18	8	47.06	0	0.00	14	17.65	1	5.88	0
Mesa	78	10	12.82	22	28.21	64	82.05	2	2.56	65	16.67	3	3.85	2
Mono City	65	23	35.38	14	21.54	38	58.46	2	3.08	40	38.46	0	0.00	3
Rovana	51	46	90.20	0	0.00	51	100.00	8	15.69	51	0.00	8	15.69	30
Shoshone	14	2	14.29	4	28.57	14	100.00	1	7.14	11	21.43	0	0.00	0
Swall Meadows	70	0	0.00	0	0.00	27	38.57	0	0.00	49	30.00	0	0.00	0
Tecopa	54	16	29.63	24	44.44	52	96.30	12	22.22	19	64.81	17	31.48	7
Metadata	No. Homes Surveyed	No. of homes w/ ChainLink fences	% of home w/Chain Link	No. Mobile Homes	% Mobile Homes	No. of Single Story Homes	% of homes that are single story	No. of Homes w/ Junk Cars	% of Homes w/ Junk Cars	No. of Homes with Landscaped yards	% homes lack landscaping	No. of homes with Junk in the yard	% homes with yard junk	No. of homes in need of obvious repair

Community	SingleStory	PctSS	JunkCars	PctCars	Landscape	PctLandSc	YardJunk	PctYardJunk	RepairNeed	PctRepairs	AvgPctHomes	GasLocPrice	GasPriceAvg	DepartAvg
Big Pine	238	92.25	8	3.10	250	3.10	8	3.10	6	2.33	25.69	3.79	3.57	0.22
Big Pine Paiute Tribe	108	100.00	18	16.67	61	43.52	30	27.78	4	3.70	43.65	3.79	3.57	0.22
Big Pine CSD	88	90.72	6	6.19	90	7.22	6	6.19	6	6.19	32.40	3.79	3.57	0.22
Bishop Paiute Tribe	73	100.00	19	26.03	35	52.05	28	38.36	13	17.81	48.53	3.53	3.58	-0.05
Bridgeport	87	72.50	13	10.83	61	49.17	9	7.50	25	20.83	33.81	4.79	3.63	1.16
BridgeportPUD	66	75.00	9	10.23	43	51.14	6	6.82	22	25.00	36.04	4.79	3.63	1.16
Lee Vining	49	76.56	3	4.69	42	34.38	9	14.06	10	15.63	30.36	4.59	3.63	0.96
McGee Creek	8	47.06	0	0.00	14	17.65	1	5.88	0	0.00	16.81	4.11	3.56	0.55
Mesa	64	82.05	2	2.56	65	16.67	3	3.85	2	2.56	21.25	3.61	3.56	0.05
Mono City	38	58.46	2	3.08	40	38.46	0	0.00	3	4.62	23.08	4.59	3.63	0.96
Rovana	51	100.00	8	15.69	51	0.00	8	15.69	30	58.82	40.06	3.583	3.58	0.003
Shoshone	14	100.00	1	7.14	11	21.43	0	0.00	0	0.00	24.49	4.89	3.56	1.33
Swall Meadows	27	38.57	0	0.00	49	30.00	0	0.00	0	0.00	9.80	4.11	3.56	0.55
Tecopa	52	96.30	12	22.22	19	64.81	17	31.48	7	12.96	43.12	4.89	3.56	1.33
Metadata	No. of Single Story Homes	% of homes that are single story	No. of Homes w/ Junk Cars	% of Homes w/ Junk Cars	No. of Homes with Landscaped yards	% homes lack landscaping	No. of homes with Junk in the yard	% homes with yard junk	No. of homes in need of obvious repair	% home in need of obvious repair	Average of all qualitative % indicators for the given community	Local price of gas on date of survey	Average gas price in CA for the week of the survey	Departure of local gas price from State average

	1											
Community	DistFire	FireIndex	FireDistIndex	DistMed	MedIndex	MedDistIndex	DistLaw	LawIndex	LawDistIndex	DistSchools	SchoolIndex	DistSchoolIndex
Big Pine	16	2	3	16	1	2	1	2	3	1	3	3
Big Pine Paiute Tribe	16	2	2	16	2	2	1	2	3	1	3	3
Big Pine CSD	16	2	2	16	1	2	1	2	3	1	3	3
Bishop Paiute Tribe	1	3	3	1	3	3	1	2	3	1	3	3
Bridgeport	55	2	1	55	2	1	1	2	3	26	2	1
BridgeportPUD	55	2	1	55	2	1	1	2	3	26	2	1
Lee Vining	29	2	1	29	1	1	25	1	2	1	3	3
McGee Creek	12	1	2	12	1	2	2	1	3	12	1	2
Mesa	10	1	2	10	1	2	10	1	2	10	1	2
Mono City	37	2	1	37	1	1	20	1	2	8	1	2
Rovana	14	1	2	14	1	2	14	1	2	14	1	2
Shoshone	28	1	1	28	2	1	1	2	3	28	2	1
Swall Meadows	20	2	2	20	1	2	11	1	2	20	1	2
Тесора	40	2	1	40	1	1	12	1	2	40	2	1
Metadata	1= Min of VFD Service Present, other number = distance to nearest service (VFD or Paid)	1 = No Service, 2 = VFD, 3= Paid Station	1= > 25 miles, 2= 5-25 miles, 3 = < 5 miles	1= Full Service Hospital Present, other number = distance to full service Hospital	1 = No Service, 2 = Local Clinic 3= Hospital	1= > 25 miles, 2= 5-25 miles, 3 = < 5 miles	1= Full Service Present, other number = distance to full service	1= No Service, 2= Service	1= > 25 miles, 2= 5-25 miles, 3 = < 5 miles	1= Full Service (K- 12) school present, other number = distance to full service (k-12)	1 = No School 2 = Partial K-12 3= Full K-12	1= > 25 miles, 2= 5-25 miles, 3 = < 5 miles

Community	DistGas	GasIndex	GasDistIndex	DistGrocery	GroceryIndex	GrocDistIndex	DistPO	PoIndex	PoDistIndex	DistBank	BankIndex	BankDistIndex
Big Pine	1	2	3	16	2	2	1	2	3	16	2	2
Big Pine Paiute Tribe	1	2	3	16	2	2	1	2	3	16	2	2
Big Pine CSD	1	2	3	16	2	2	1	2	3	16	2	2
Bishop Paiute Tribe	1	2	3	1	3	3	1	2	3	1	3	3
Bridgeport	1	2	3	55	2	1	1	2	3	1	3	3
BridgeportPUD	1	2	3	55	2	1	1	2	3	1	3	3
Lee Vining	1	2	3	29	2	1	1	2	3	25	2	2
McGee Creek	3	1	3	12	1	2	12	1	2	12	1	2
Mesa	10	1	2	10	1	2	10	1	2	10	1	2
Mono City	8	1	2	37	1	1	8	1	2	20	1	2
Rovana	14	1	2	14	1	2	14	1	2	14	1	2
Shoshone	1	2	3	28	2	1	1	2	3	28	2	1
Swall Meadows	11	1	2	20	1	2	20	1	2	20	1	2
Тесора	12	1	2	40	1	1	1	2	3	40	1	1
Metadata	Distance to Gas Station in Miles. 1 = a gas station is present in the community	1= No Service, 2= Service	1=> 25 miles, 2= 5-25 miles, 3 = < 5 miles	1= Full Service Present, other number = distance to full service (supermarket)	1 = No Service 2 = Local Market 3= Supermarket	1= > 25 miles, 2= 5-25 miles, 3 = < 5 miles	1= Postal Service Present, other number = distance to nearest postal service	1= No Service, 2= Service	1=> 25 miles, 2= 5-25 miles, 3 = < 5 miles	1= Full Service Present, other number = distance to full service Bank	1 = No Service 2 = ATM 3= Bank	1= > 25 miles, 2= 5-25 miles, 3 = < 5 miles

Appendix C: Inyo-Mono IRWM Program Disadvantaged Communities Project Mid-Grant Outreach Synthesis

February, 2013

Executive Summary

The California Department of Water Resources (DWR), through voter-approved Proposition 84 (2006), made \$2.5 million available to Integrated Regional Water Management (IRWM) Programs throughout the state to study and provide insight into disadvantaged community (DAC) involvement in the IRWM process. In all, a total of seven grants were awarded for up to \$500,000 each. The Inyo-Mono IRWM Program received an initial grant of \$371,000 in 2011 and was able to secure an additional \$125,000 in 2012, bringing the total grant amount to \$496,000. A substantial portion of the grant money was dedicated to reaching out to and involving DACs and tribes in the water planning process in eastern California. This work also included efforts to assess water-related needs of DACs and to build internal capacity to begin to address these needs.

A main emphasis of the DAC grant is to conduct outreach to DACs throughout the region to learn more about why DACs do or do not participate in the IRWM planning process. Having the Inyo-Mono IRWM region as one of the grant recipients provides a case study for DAC participation in a rural, mountainous, headwaters region. Lessons learned from DAC involvement in our region may help others improve their outreach to and participation of DACs.

California statute defines a disadvantaged community as one whose median household income falls at or below 80% of the statewide median household income. The original list of DACs in the Inyo-Mono planning region was based on median household income (MHI) data from the 2000 Census. Part of the first tasks in the DAC grant was to update this list based on 2010 Census data. After waiting more than a year for these data to become available, it was discovered that the 2010 Census did not collect MHI data at the community level. Instead, it was suggested by DWR to use 5-year American Community Survey (ACS) estimates.

A first step in the outreach process was to review what DAC and tribal outreach had been conducted on behalf of the Inyo-Mono IRWM Program from its inception in 2008 until the beginning of the DAC grant in 2011. A short synthesis was developed and is attached as an appendix to this report. The next step involved convening a training specific to conducting outreach in disadvantaged communities. An outside consultant who has worked extensively with DACs in southern California came to the region for two days to share her experiences and lessons learned.

Following the training, an outreach campaign was undertaken in which Program Office staff scheduled meetings with individual entities (communities, water systems, tribes) in order to present the IRWMP and talk about water issues. Seven meetings were held throughout the region in this first effort. Outreach efforts also included visiting and talking with IRWM

representatives and DACs in other regions. Inyo-Mono staff visited the Upper Pit, South Sierra, Yosemite-Mariposa, and Tuolumne-Stanislaus IRWM regions.

The entirety of these various meetings resulted in several lessons learned regarding DAC and tribal involvement in regional water planning:

- 1. IRWM regions, and the water issues they address, need better public relations and higher visibility in the media.
- 2. Boards of directors of small water systems would benefit from training on such topics as rate structures, Proposition 218, and grant proposal development.
- Several meetings may be required to engage new communities and involve them in the IRWM process. IRWM is a complex concept to explain to new stakeholders, and it is important to follow up from meetings to answer questions and provide additional information.
- 4. It is important to recognize that outreach to and engagement of Native American tribes should not be "lumped in" with outreach to DACs. IRWM groups need to use outreach and communication techniques appropriate for tribal stakeholders. These might include in-person communications, reaching out to tribal council members, and regular follow-up communications.
- 5. Disadvantage can mean more than low income. There are other socioeconomic and cultural factors to consider when characterizing DACs and working to make resources available.

The Inyo-Mono IRWM Program Office staff will continue to conduct outreach to area DACs as opportunities arise. A major focus of the second half of the grant will be investigating alternative metrics for defining DACs based on these outreach findings.

Overview

The California Department of Water Resources (DWR), through voter-approved Proposition 84 (2006), made \$2.5 million available to Integrated Regional Water Management (IRWM) Programs throughout the state to study and provide insight into disadvantaged community (DAC) involvement in the IRWM process. These grants were non-competitive; the funding was essentially available on a first-come, first-served basis. Each grant could provide up to \$500,000 in funding. The Inyo-Mono IRWM Program Office staff first applied for one of these DAC grants in May of 2010 and received word shortly thereafter that the Inyo-Mono IRWM Program would receive one of the grants, although funding was not made available until mid-2011.

In addition to the Inyo-Mono Program, four other IRWM regions were awarded this grant funding: North Coast, Greater Los Angeles, Coachella Valley, and Upper Kings River. More recently, the Imperial Valley IRWM region was awarded some DAC grant funding.

The original Inyo-Mono DAC grant application requested just over \$371,000, and full funding

was awarded. Broadly, the focus of the tasks to be accomplished during the grant is to learn more about DAC-specific needs in the Inyo-Mono IRWM region and investigate DAC involvement in the IRWM process. During the course of working with stakeholders through the IRWM process, Program Office staff observed a significant need for building capacity in DACs, Tribes, and small water systems. Fulfilling this need became another focus of the DAC grant work. Specifically, the original work plan (included as an addendum to this report) included six main categories of tasks:

- Task 1: Identify DACs in the planning region and develop an outreach strategy
- Task 2: Conduct outreach and stakeholder meetings
- Task 3: Assess needs of DACs in the region
- Task 4: Build capacity of DACs in the region
- Task 5: Synthesize results and develop reports
- Task 6: Disseminate project findings

During the DAC outreach training held in February, 2012 (see p.5), the participants developed ideas about how to influence DAC-related legislation, funding, and policy and created two additional tasks for the DAC grant (Tasks 7&8). Because the Inyo-Mono region had not requested the full \$500,000 in available funding, Program Office staff inquired to DWR whether additional funding could be granted to the region. Eventually this funding was approved, and the total grant amount is now about \$496,000. The additional funding will be used to explore alternative methods of identifying and defining DACs and to produce a short documentary film about the importance of clean, reliable water supplies to DACs in the planning region.

DAC and tribal outreach in the Inyo-Mono region prior to the DAC grant

A main emphasis during the development of the Integrated Regional Water Management Program in the Inyo-Mono region was reaching out to stakeholders interested in water-related issues. In order to reach a broad cross-section of stakeholders, this outreach necessarily included DACs and tribes. As a first task in the DAC grant, Program Office staff developed a summary-to-date of outreach to DACs and tribes. This document is included as an appendix to this report.

Updated identification of DACs in the Inyo-Mono IRWM region

California statute defines a disadvantaged community as one whose median household income falls at or below 80% of the statewide median household income. The original list of DACs in the Inyo-Mono planning region was based on median household income (MHI) data from the 2000 Census. Part of the first tasks in the DAC grant was to update this list based on 2010 Census data. After waiting more than a year for these data to become available, it was discovered that the 2010 Census did not collect MHI data at the community level. Instead, it was suggested by DWR to use 5-year American Community Survey (ACS) estimates, the most recent of which (as of 2011) are composites of data collected between 2006 and 2010. More information on ACS estimates can be found at this website: http://www.census.gov/acs/www/.

In conjunction with the recommendation to use ACS estimates, DWR also built an online

interactive map to help users find DACs in their IRWM regions

(<u>http://www.water.ca.gov/irwm/grants/resourceslinks.cfm</u>; scroll down to "DAC Maps"). While this mapping tool covers most DACs in the Inyo-Mono region, it does not cover Native American tribal lands. Those estimates were sourced directly from the ACS website.

Using the five-year ACS estimates, Program Office staff developed an updated list of DACs within the Inyo-Mono planning region. According to the 2006-2010 ACS data, a community is a DAC if its annual MHI is less than \$48,706 (which is 80% of the California statewide MHI of \$60,883). A list of communities fitting this definition is provided below. It is worth noting that the entirety of Inyo and Kern Counties fall below the DAC income threshold.

Through the Program Office staff's anecdotal knowledge of the region, some of the ACS data appear doubtful or incomplete. In some cases, DWR lists a community as a DAC on its mapping tool but also shows that the population and/or MHI data are not available for that community (see Pearsonville or Valley Wells CDP as examples in the above table). In other cases, DWR shows a community to be a DAC when the known reality is different (meaning that it is not a DAC; Aspen Springs and McGee Creek are two examples). In addition, some communities that are most likely DACs (such as Big Pine) have MHIs that are too high to be considered a DAC by the legislative definition. Finally, not all communities, especially in rural areas, show up in Census or ACS estimates, or communities may be lumped together into one Census Designated Place (e.g., Topaz, Coleville, and Walker have been lumped as Antelope Valley in the past). These difficulties in finding Census and/or ACS data for every community in the Inyo-Mono region bring into question the efficacy of relying on such data to define DACs. Although we now have an updated list of DACs in the Inyo-Mono region using more recent data, staff will continue to look into alternative ways of defining DACs. Such an alternative definition may be quantitative, qualitative, or a combination.

A more thorough analysis of the data used to identify DACs in the Inyo-Mono region can be found in Chapter 1 of the Inyo-Mono IRWM Phase II Plan (<u>http://inyo-monowater.org/inyo-mono-irwm-plan-2/inyo-mono-irwm-plan/</u>).

Community	Population	Annual Median Household Income
Invo County	18.434	\$44,808
Big Pine Paiute Reservation of the Owens Valley	262	\$43.214
Bishop	3.826	\$37.005
Bishop Paiute Tribe	1,828	\$46,384
Darwin CDP	30	\$30,893
Dixon Lane-Meadow Creek CDP	2,660	\$48,542
Fort Independence Tribe	81	\$30,417
Furnace Creek CDP	64	\$27,813
Homewood Canyon CDP	109	\$14,706
Independence	551	\$47,883
Keeler CDP	27	\$44,500
Lone Pine CDP	2,309	\$40,176
Lone Pine Paiute-Shoshone Reservation	148	\$37,188
Pearsonville CDP	5	Not available ⁵
Shoshone CDP	33	\$28,750
Tecopa CDP	101	\$21,806
Timbisha-Shoshone Reservation	32	\$23,063
Valley Wells CDP	Not	Not available
	available	
Wilkerson CDP	563	\$44,356
Kern County	815,693	\$47,089
China Lake Acres CDP	1,553	\$35,102
Inyokern	1,676	\$31,925
Mono County	13,905	\$55,087
Aspen Springs CDP°	Not	Not available
	available	<i>Ф</i> 40, 440
Benton CDP	289	\$40,119 \$0,000 ¹
Benton Palute Reservation	75 [°]	\$9,938
Bridgeport Indian Colony	35	\$10,625
	29	Not available
Topaz CDP	INOT	Not available
Wellier Diver Deservation	available	¢ос 007
	506	\$20,221 \$20,692
Woodfords Community of the Weehee Tribe ⁴	120	\$30,00∠ ¢25,417
woodfords Community of the washoe Tribe	128	φ20,417
San Bornardino County	2 005 297	\$55.945
	2,005,207	φ 33,043 \$35,1 <i>1</i> 7
Trona CDP	17	Not available

Table 1. Disadvantaged communities of the Inyo-Mono IRWM planning region.

¹: From 2009 5-year ACS

²: From 2010 Dicennial Census

³: Consists of the communities of Argus, Trona, Pioneer Point, and Searles Valley, CA. For our purposes, we consider only the Searles Valley CDP data, since they encompass Trona.

⁴: Woodfords Community is the sole branch of the Washoe Tribe located in CA

⁵: Communities with MHI listed as "Not available" are listed as DACs based on their DAC designation using DWR's DAC mapping tool.

⁶: Aspen Springs is considered a DAC by DWR's mapping tool; anecdotal evidence suggests that Aspen Springs is not a DAC; the community's economic status will be reviewed through the DAC grant.

⁷: Topaz and Walker (and Coleville) constitute the Antelope Valley, which was its own CDP in 2000 census data.

Outreach conducted in the Inyo-Mono region through the DAC grant

A main emphasis of the DAC grant is to conduct outreach to DACs throughout the region to learn more about why DACs do or do not participate in the IRWM planning process. Having the Inyo-Mono IRWM region as one of the grant recipients provides a case study for DAC participation in a rural, mountainous, headwaters region. Lessons learned from DAC involvement in our region may help others improve their outreach to and participation of DACs.

Although the Program Office staff was already fairly well experienced in doing outreach, we chose to bring in an outside consultant to provide an outreach training specific to DACs. Our



trainer was Maria Elena Kennedy of Kennedy Consultants, a consultant specializing in outreach to DACs. Maria primarily works with the Santa Ana Watershed Project Authority IRWMP and the Greater Los Angeles IRWMP. The training was held over two days in Mammoth Lakes, CA, in February of 2012. Maria brought with her substantial experience, including lessons learned, in working with DACs in southern California. She emphasized that working with DACs can be much different than working with more affluent communities. There may be

cultural or language barriers, and by their very nature, it is difficult for working families to participate in daytime outreach meetings or meetings that are far from their community. Ms. Kennedy's training provided an additional suite of tools for staff to use when reaching out to and visiting DACs. In addition to Program Office staff, several Members of the Inyo-Mono Regional Water Management Group attended the training. At the end of the session, it was suggested by some of the participants that those attending the training become a kind of technical advisory committee to the Program Office for matters related to the DAC grant.

As discussed above, a substantial outreach effort was undertaken during the early stages of the Inyo-Mono IRWM Program. Some of this outreach involved DACs and tribes. The focus of the outreach done through the DAC grant was to contact those DACs with which we have had little or no contact in the past. Although we have had some success in reaching these communities and have held a few meetings (see Table 2 below), we are finding that additional effort is yielding diminishing returns. One explanation may be that many of these DACs are particularly small and isolated communities (e.g., Darwin, Keeler, Searles Valley) with little organizational structure for participating in something like an IRWM Program. We also find that some small desert communities do not want to participate in collaborative water planning and would prefer to be left alone. Therefore, while staff will continue to reach out to DACs in order to learn more about their water-related concerns and help them to find resources to address those concerns, staff will put energy into ensuring that those DACs that are already involved in the process stay

involved and are getting the resources they need.

Disadvantaged Community	Date of Meeting
Benton Paiute Tribe	January, 2012
Bridgeport Public Utilities District ¹	February, 2012
Big Pine Community Services District ¹	February, 2012
Paiute-Shoshone Coalition for Protection of Aboriginal Lands	March, 2012
Inter-Iribal Meeting	
Mono Basin Regional Planning Advisory Committee (serves	lune, 2012
Lee Vining and Mono City)	30110, 2012
Bridgeport Regional Planning Advisory Committee	July, 2012
Tri-Valley Groundwater Management District	July, 2012

Table 2. Outreach meetings conducted within the DAC grant.

¹Bridgeport and Big Pine are not considered DACs according to 2006-2010 ACS MHI estimates. Bridgeport has had a third-party income survey completed for the community to prove it is a DAC in order to apply for a California Department of Public Health Grant. The jurisdiction of the Big Pine Community Services District is different than the Big Pine Census Designated Place. It is likely that the community of Big Pine CSD customers is a DAC.

Despite the size of our IRWM region, we have found many common issues among DACs that are geographically isolated from one another. Water quality and water supply reliability are two major concerns encountered in most Inyo-Mono DACs. Many communities have old and/or outdated infrastructure and need improvements and upgrades to (1) comply with new regulations, such as metering, (2) meet water quality standards, and (3) improve overall reliability and efficiency of the system. Many of the communities in the region that depend on groundwater are subject to contamination of their water from natural constituents, such as arsenic and uranium. Treating water to drinking-level standards in these communities often requires costly water treatment infrastructure and distribution systems.

What has been perhaps more surprising, however, are the commonalities among Inyo-Mono DACs with respect to managing water resources. Small community water systems typically have governing boards made up of volunteers. Board members usually have "day jobs" and are not able to devote a great deal of time to the water system. If there is a paid staff, it usually consists of a water operator and/or an administrator, though not all water systems employ these two positions. Other common challenges faced by small community water systems include lack of technical expertise and ability to develop grant applications, limited income, and limited knowledge of policies and regulations such as CEQA, groundwater monitoring requirements, water quality regulations, and Proposition 218 (Right to Vote on Taxes Act – 1996).

While commonalities exist, each Inyo-Mono DAC in our region is a unique community facing unique challenges. Some communities rely solely on groundwater; others use a combination of pumped water and surface water. A few communities are able to minimally treat their water, while other communities are required to implement costly projects to remove persistent contaminants such as arsenic and uranium. Climatic differences among communities result in different types and timing of water demand. Finally, different types of water systems – for example, community service districts vs. mutual water companies – may be subject to different

requirements. Yet all water systems, whether they serve a disadvantaged community or not, strive to provide safe drinking water and/or effective wastewater management to their customers. Furthermore, a good number of homeowners in the eastern Sierra maintain their own wells and septic systems. The Inyo-Mono IRWM Program has not yet developed a means by which to work with individual well owners, but we recognize that these people represent a sizable portion of the population in the region and may face similar issues with respect to water quality and supply as small water systems.

Outreach conducted outside the Inyo-Mono region through the DAC grant

Another objective of the grant is to understand if water-related concerns of DACs within the Inyo-Mono IRWM region are unique to the region, or if these (or similar) concerns are shared with similar types of regions that have a substantial number of DACs. The intention was for Inyo-Mono Program Office staff to travel to other IRWM regions to meet with RWMG representatives and/or DACs (e.g., a community that is not part of the RWMG). We chose to focus on Sierra Nevada IRWM groups because of their similarities to the Inyo-Mono region with respect to rural communities, sparse population, headwaters/source water watersheds, and natural resource-based economies. Inyo-Mono Program Office staff worked with staff from the Sierra Nevada Alliance to identify and reach out to Sierra IRWMPs to inquire about and gauge interest in meeting. The goal was to visit three IRWM regions. Some Sierra IRWMPs were just forming and were not ready to talk specifically about DACs. Finally, staff found enough interest to coordinate three separate trips. Within the span of these trips, Inyo-Mono staff was able to talk with representatives from seven regions. A list of the meetings that took place is provided in Table 3.

Name of Organization	Associated IRWM Region	Date of Meeting (2012)	Mono Staff Attending
Southern Sierra RWMG	Southern Sierra	September	2
Pit River Tribe (Not yet officially participating in the Upper Pit IRWMP)	Upper Pit	October	1
Burney Water District	Upper Pit	October	4
Fall River Mills Community Services District	Upper Pit	October	4
Modoc County	Upper Pit	October	4
Three independent consultants who facilitate RWMGs	Upper Pit and CABY	October	4
Yosemite-Mariposa RWMG	Yosemite-Mariposa	October	1
Mariposa RCD & CCP facilitator	Yosemite-Mariposa	October	1
Provost & Pritchard (consultants)	Merced	October	1
Coarsegold Resource Conservation District	Madera	October	1
Tuolumne Me-Wuk Tribe	Tuolumne- Stanislaus	October	1

Table 3. DAC outreach meetings conducted outside of the Inyo-Mono IRWM region.

Two staff members visited the Southern Sierra IRWMP during one of its regular RWMG meetings in Visalia, CA, in September, 2012. Inyo-Mono staff presented general information about the Inyo-Mono IRWM Program and specific information pertaining to the DAC project. Southern Sierra RWMG participants asked several questions of Inyo-Mono staff relating to grant applications, funding received, and DACs. Inyo-Mono staff plans to follow up on that meeting by scheduling another visit to the region and meeting specifically with DACs and those in the IRWMP who do outreach to DACs.

Three Inyo-Mono Program Office staff members and one Sierra Nevada Alliance staff member traveled to the Upper Pit IRWM region in October, 2012. The focus of this trip was four meetings with RWMG participants, all of which are DACs. In fact, every population center in the Upper Pit region falls within the DAC definition. The area has faced a significant economic downturn because of changes in resource extraction industries. Similar to the Inyo-Mono region, the water resources in the Upper Pit region are important not only to the communities in the region, but to millions of downstream users as well. The Pit River contributes 30% of the flow of the Sacramento River. The Upper Pit IRWM region faces similar issues to the Inyo-Mono IRWM region in terms of wanting to protect headwaters watersheds and communities while realizing the needs of downstream users as well.

The two water agencies and one county representative with whom we met in the Upper Pit region expressed concern that community members are not engaged in water resources management and planning. Some even used the term "apathetic", which increases the burden on water managers trying to improve infrastructure or find funding for projects. Several water managers talked about the role of governing boards in community water management and planning. They expressed that governing boards make decisions that can have significant positive or negative impacts on their communities and are always under pressure to keep rates, fees and charges low. Board members struggle to fully comprehend and understand complicated issues like IRWM given the limited time frame available to them to gain that knowledge prior to making decisions. In terms of participation in the IRWMP, the entities with which we met attributed their involvement, and the involvement of many others, to a county supervisor who championed the IRWMP early on. This influence clearly helped to shape the

IRWMP. The Upper Pit RWMG has also faced challenges from the Tea Party, which is an organized force in the area. Tea Party members have attended and disrupted meetings with concerns of government intrusion into water resources. One person cited the Tea Party as the reason that some do not get involved in the IRWMP effort. The one Native American tribe in the area is cautiously beginning to participate in the IRWMP. Tribal members and staff have concerns about the IRWMP process conflicting with its tribal



sovereignty. It also seems that the eleven "bands" of the tribe in the Upper Pit region do not always agree or come across with a unified voice.

The next week, one Inyo-Mono staff member visited the Yosemite-Mariposa IRWM region. She first attended a Yosemite-Mariposa RWMG meeting, at which she met several Yosemite-Mariposa IRWM stakeholders and presented information on the Inyo-Mono DAC project. That afternoon, she met with the lead agency of the Yosemite-Mariposa IRWMP as well as representatives of the Madera and Merced IRWMPs. All three IRWM regions include many disadvantaged communities. Yosemite-Mariposa has had difficulty getting tribal participation because of the sovereignty issue. Yosemite-Mariposa staff has recently met with the tribe to discuss its possible participation. Again, all three IRWM regions are headwaters watersheds for water resources that are important locally as well as for downstream users. For the most part, the largest concerns in these western Sierra watersheds are wildfires and non-point source pollution originating from agriculture.

All three IRWM representatives cited challenges relating to the DACs in their regions. There are language barriers because of the large Latino populations in the area, though not all DACs in the regions are Latino. Lack of Internet access is common, as well as poor cell phone coverage. The Yosemite-Mariposa staff, in particular, expressed a need to do more outreach. Much of this would be a second round, but they think it is necessary to contact many groups a second time. The IRWM representatives agreed that the MHI-based definition of DACs does not adequately represent the total disadvantage in their regions, although they had not yet thought about alternative metrics.



During the same trip, the Inyo-Mono staff member met with Environmental Program staff for the Tuolumne Me-Wuk Tribe, which is a relatively new participant in the Tuolumne-Stanislaus IRWMP. The tribe is hesitant to sign an MOU with other Tuolumne-Stanislaus RWMG participants because of potential threats to its sovereignty. Such sovereignty issues were not discussed further during this meeting, but they will be further explored in future stakeholder and group meetings. However, tribal staff has participated in IRWMP meetings for about one year. She indicated that an organization that is supposed to represent DAC issues and concerns with the IRWMP rarely participates; thus, it is important for the tribe to attend to represent its own interests. This staff member emphasized that person-to-person contact is key when doing outreach to tribes. Furthermore, she recommended making contact with the tribal chairperson (or other tribal councilmembers) as being crucial to involving tribes in the IRWM process.

Inyo-Mono IRWMP staff found many similarities between the Inyo-Mono region and the other Sierra/headwaters IRWM regions with which we met, which are summarized in Table 4 below. These other regions also have a large proportion of DACs, many of which are lacking resources to adequately plan for and manage their water systems. We found similarities in managers of small water districts describing (1) a lack of interest and involvement in water management by their ratepayers, and (2) a lack of interest and knowledge in many of their board members. Stakeholders in these regions have similar general concerns regarding limited availability of water resources because of water rights related to exports from the region and downstream use. These regions, including the Inyo-Mono, are some of the sources of the major rivers (Sacramento, San Joaquin, Owens) feeding water imports for California's urban and agricultural areas.

We found both similarities and differences in why disadvantaged communities and tribes participate in the IRWM planning process. Meetings of the Upper Pit RWMG have been disrupted by people voicing concerns about the IRWM Program taking away water rights and instituting additional regulation. Although Inyo-Mono RWMG meetings have not been disrupted in the same way, staff has found opposition to the Inyo-Mono IRWM Program based on similar concerns. The Yosemite-Mariposa region has been challenged in its outreach efforts to encourage smaller water districts to participate in the IRWM Program. Similar to the Inyo-Mono region, many of these water districts are governed by volunteer boards and employ a contract water operator.

A major disparity that we have seen between the Inyo-Mono region and other regions relates to tribal involvement in the IRWMP process, particularly for tribes that are federally recognized. Many other IRWM regions have had difficulty involving tribes because of tribes' own reluctance. Some tribes view the IRWM Program as a potential threat to their sovereignty. They are concerned that being involved with the IRWM Program and receiving Prop. 84 funding will bind them to abide by laws and regulations not recognized by the tribe. Indeed, there have been such concerns within both the North Coast and Inyo-Mono IRWMPs, and the inquiry has been made to DWR as to whether tribes must comply with rules and regulations required by Prop. 84. DWR has responded that tribes must indeed comply with such rules and regulations. Whether or not such compliance will actually impact use of Prop. 84 funds by tribes is unknown. Nevertheless, this concern poses a barrier to full tribal involvement in the process. The Inyo-Mono RWMG has been fortunate thus far in that virtually all of the tribes in the region have found the benefits of participation in the IRWMP to outweigh the costs or risks. We hope that the tribes in the Inyo-Mono region can help encourage and facilitate participation of tribes in other IRWM regions.

	Inyo-Mono	Upper Pit	Yosemite- Mariposa	Madera	Merced	Tuolumne- Stanislaus	Southern Sierra
Local economies dependent upon volatile industries, such as tourism and resource extraction	Х	Х	Х				
Consistent involvement by local elected officials in RWMG activities, including assisting with outreach to stakeholders		х	х				
Ongoing outreach needed to reach new stakeholders and members of the public	Х	Х	Х				
Significant portion of surface water and/or groundwater resources are exported to downstream and/or urban areas	х	х	х	х	х	х	х
Opposition to IRWM planning from organized groups such as the Tea Party, which has discouraged IRWM participation by some stakeholders		Х					
Desire to educate downstream water users about protecting headwaters portion of watersheds and local communities	Х	Х	Х	Х	Х	Х	х
Lack of participation by area Native American Indian tribes, largely because of concerns related to tribal sovereignty		х	Х			х	
Governing boards of small water districts lack knowledge and need training	Х	х					
Reticence of water system governing boards to increase water and wastewater rates	Х	Х					
Water resource issue: Wildfire and its effect on water supply and water auglity	Х		Х			Х	х
Water resource issue: Agricultural practices and their effects on water auglity is a major issue	Х	Х	Х				
Language barriers in Latino DACs prevent their involvement in the IRWMP process			х	х	х		
Lack of internet access and poor cell phone coverage	Х		Х				
Observation that MHI-based definition of DACs does not adequately cover the true disadvantage in local communities	х		Х	Х	х		
Large proportion of communities in IRWM region are DACs	Х	Х	Х	Х	Х		
Lack of interest among public to participate in water resources planning and management		х	Х				
Outreach and engagement of small community water systems, especially those with volunteer boards and little or no staff, is challenging	х	х	х				

Table 4. Summary of similarities and differences found between the Inyo-Mono IRWM Program and other Sierra-DAC IRWM Programs through outreach meetings

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Lessons Learned

- 1. IRWM regions, and the water issues they address, need better public relations and higher visibility in the media.
- 2. Boards of directors of small water systems would benefit from training on such topics as rate structures, Proposition 218, and grant proposal development.
- 3. Several meetings may be required to engage new communities and involve them in the IRWM process. IRWM is a complex concept to explain to new stakeholders, and it is important to follow up from meetings to answer questions and provide additional information.
- 4. It is important to recognize that outreach to and engagement of Native American tribes should not be "lumped in" with outreach to DACs. IRWM groups need to use outreach and communication techniques appropriate for tribal stakeholders. These might include in-person communications, reaching out to tribal council members, and regular follow-up communications.
- 5. Disadvantage can mean more than low income. There are other socioeconomic and cultural factors to consider when characterizing DACs and working to make resources available.

Next Steps

The Inyo-Mono IRWM Program Office staff will continue to conduct outreach to area DACs as opportunities arise. A major focus of the second half of the grant will be investigating alternative metrics for defining DACs based on these outreach findings.

This report will be circulated among DACs and tribes in the Inyo-Mono region and neighboring IRWM regions to validate the findings and gather additional information about DAC engagement in the IRWM process.

Appendix D: Disadvantaged Community Involvement in the Inyo-Mono Integrated Regional Water Management Program

The Inyo-Mono IRWM Program began in early 2008 as envisioned by a few forward-thinking stakeholders in Inyo and Mono Counties in response to a need for collaborative water planning in the region and opportunities available through the recently-passed Proposition 84. The goal of the Inyo-Mono IRWM Program has always been to have an open, collaborative, and inclusive process, recognizing the specific and unique needs of various types of stakeholders, including disadvantaged communities (DACs) and Native American Tribes.

Public involvement and outreach

Any member of the public who is interested in water issues within the Inyo-Mono IRWM region is welcome to participate in the Inyo-Mono IRWM Program. Initial outreach in 2008 was primarily directed towards engaging stakeholders to be fully involved in the pre-planning process. At all times, Inyo-Mono Regional Water Management Group (RWMG) meetings have



been open to the public, and notices of the meetings are publicly available on the website (www.inyomonowater.org) and in local media outlets. Throughout 2008, 2009, and 2010, Inyo-Mono Project Staff and other stakeholder volunteers attended numerous public meetings throughout the planning region, with the dual purpose of identifying additional stakeholders for the RWMG as well as providing basic information about the Inyo-Mono IRWMP to members of the public. In 2010 and 2011, Program Staff, with the assistance of a facilitator, held a series of public

meetings specifically about the Inyo-Mono IRWM Program. These meetings were held throughout the region and during evening hours in order to attract as many members of the public as possible. A primary goal of these outreach efforts has been to identify and reach out to the more remote and rural communities within the region as well as to economically disadvantaged communities (DACs), fully recognizing that in many instances these two types of communities overlap.

Because of the size of the region, it has been difficult to reach every potentially affected stakeholder or community. However, it has been the priority of the Inyo-Mono RWMG from its inception to maintain an open, transparent, and inclusive process. The emphasis in these outreach efforts is to inform members of the public about the funding opportunities and other resources available for addressing local and regional water needs and to stress that the IRWM Program can increase local participation in water management issues.

Disadvantaged Communities

DEFINING DISADVANTAGED COMMUNITY

Based on legislation, a disadvantaged community in California is defined as a community with an annual median household income (MHI) that is less than 80% of the statewide annual MHI.² The statewide annual MHI in California in 1999 was \$47,493. Communities with annual MHIs that are below \$37,994 (2000 Census) are considered disadvantaged communities. To begin identifying disadvantaged areas in the I-M IRWM planning region, the MHI was compared at the census tract level using 2000 Census data. Seventeen census tracts within the region, for which census data were available, qualify as disadvantaged communities (Table 1). Census data were not available for all communities as some are too small to provide information without identifying individual people. Identified disadvantaged communities are displayed in Figure 1. The DACs in the I-M IRWMP planning region include incorporated and unincorporated communities in Inyo, Mono, and Kern Counties, as well as federally-recognized and nonfederally-recognized American Indian Tribes.

In 1999, the MHI for the whole of Inyo County (the second largest county in California) was \$35,006, which is below the statewide MHI. Eleven communities in Inyo County qualify as disadvantaged; two communities, Darwin and Tecopa, have MHI levels that are below the federal poverty level (\$16,600) (Table 1). All of the Native American Indian Reservations for which census data are available, excluding Fort Independence, qualify as disadvantaged communities. The combined population of the disadvantaged communities in Inyo County in 1999 was 9,496, representing 53% of the total county population. Population growth in Inyo County was slow relative to other counties in California (2.1% from 2000 to 2003), and ranked 41st of 58 California counties for population growth.

The MHI for Mono County in 1999 (\$44,992) was higher than Inyo County but still below the statewide MHI. Four of the communities in Mono County (for which census data are available) qualify as disadvantaged, accounting for 15% (1,929) of the total population of Mono County. Two of these communities are American Indian Reservations or Colonies, which have MHIs below the poverty level (Benton Paiute Reservation [\$11,875] and Bridgeport Indian Colony [\$13,750]) (Table 1). The population of Mono County (2000) was 12,853; it is one of the slowest growing counties in the state (ranking 47th of 58 counties). Mammoth Lakes, located at the foot of Mammoth Mountain, is the only incorporated town in Mono County.

For both Kern and San Bernardino Counties, only one community within the planning region (Inyokern, of Kern County) qualifies as disadvantaged.

Although the 2000 census data have provided an initial list of DACs within the Inyo-Mono planning region which has been helpful for outreach efforts, it is important to use more recent data to reflect the current status of DACs in the region. The intention was to use MHI data from the 2010 Census to update the list of DACs in the region; however, it was recently discovered

¹ State of California legislation AB-1747 (2003).

that MHI data were not collected as part of the 2010 census. A primary task of the Program Staff will be to research and implement alternative means of identifying DACs.

OUTREACH EFFORTS TO DISADVANTAGED COMMUNITIES

From the beginning of the Inyo-Mono IRWMP process in early 2008, the RWMG made outreach to disadvantaged communities (DACs) a high priority. It was quickly recognized that due to the rural and remote nature of the region, there would likely be a large number of DACs, and this was supported by the data as explained above.

Throughout the pre-planning and planning phases, effort has been made to reach out to DACs, inform them of IRWMP activities, objectives, and resources, and more importantly, listen to their water-related needs and concerns. IRWMP staff has targeted outreach to DACs both with individual meetings/presentations and through the larger public outreach campaign implemented in 2010 and 2011. Of those identified as DACs in Table 1 below, all have received some level of outreach and information from the IRWMP, and many have signed the MOU or remain on the RWMG contact list. The I-M RWMG has recognized that the success of the IRWMP effort in the region cannot be fully realized without the participation of DACs. Indeed, inclusion of DACs into the process helps to provide a stronger voice in support of the needs of rural communities.

As the Inyo-Mono IRWM Program Office began to undertake outreach efforts to DACs and small water systems, it quickly became apparent that special considerations are necessary to successfully engage with these entities. While some DACs, such as Tribes, typically have staff members who can hold meetings during weekdays, members of many other DACs and small water systems work during the day and are therefore only available to meet during evenings. Thus, targeted outreach meetings were tailored to accommodate these schedules.

Over the first years of outreach efforts, staff also learned how to more appropriately present information about the Inyo-Mono IRWM Program to small water systems and DACs. In many cases, a formal Powerpoint presentation was not as effective as simply providing some basic handouts and verbally describing the program and its benefits. Over time, the Program Office has learned what information is of most interest to new entities. For example, groups often want to know what other stakeholders are involved in the Inyo-Mono RWMG. They are also very interested in funding opportunities and other available resources, such as technical trainings and engineering assistance, as they typically have limited resources to make improvements in their water systems without outside assistance.

The Program Office has also found that, in the case of DACs, Tribes, and small water systems, it is important to meet with these entities individually rather than trying to convene multiple entities in one meeting in a centralized location. One reason for this, as expressed by representatives of DACs themselves, is that community representatives may not have the resources to travel to a public outreach meeting, particularly if it is far away from their community (given the large nature of the Inyo-Mono region). Also, because of the large and varied nature of the region, the issues and concerns of DACs, while there are some

commonalities, tend to be individualized, and it is important to give specific attention to each individual community's interests and issues. Thus, through this DAC grant, the Program Office will be able to travel to individual communities and meet with representatives on a schedule that is convenient for them.

Community	Population	Median household income	MOU Signatory	Targeted Outreach
Inyo County	17,945	\$35,006	Yes	
Big Pine	1,350	\$37,115	No	Needed
Big Pine Paiute Reservation	428	\$25,938	Yes	Yes
Bishop	3,575	\$27,338	No	Needed
Bishop Paiute Reservation	1,445	\$26,591	Yes	Yes
Cartago	109	\$34,375	No	Needed
Darwin	54	\$13,333	No	Needed
Furnace Creek	31	\$25,625	No	Needed
Independence (county seat)	574	\$37,500	No	Needed
Lone Pine	1,655	\$29,079	No	Needed
Lone Pine Paiute-Shoshone Reservation	176	\$18,500	Yes	Yes
Тесора	99	\$12,344	Yes	More needed
Trona	1,988	\$35,952	No	Needed
Mono County	12,853	\$44, 992	Yes	
Antelope Valley ³	1,498	\$34,584	No	Yes
Benton	331	\$26,250	No	Yes
Benton Paiute Reservation	53	\$11,875	No	Needed
Bridgeport Indian Colony	47	\$13,750	Yes	Yes
San Bernardino County	1,709,434	\$42,066	No	
Kern County	661,645	\$35,446	No	
Inyokern	984	\$35,046	No	More needed

Table 1. Identified disadvantaged communities in the Inyo-Mono IRWM planning region based on 2000U.S. Census Bureau data.

² Source: U.S. Census Bureau, Census 2000 Summary File 1.Data from the US Census Bureau was accessed using the American Factfinder feature on the Census website. Census data is reported by a variety of geographic units, including census tracts, block groups, blocks, and zip codes.

³ Antelope Valley is located at the northern end of Mono County and includes the communities of Walker, Coleville, and Topaz, the Marine housing complex at Coleville, and Camp Antelope at Walker.



Figure 1. Disadvantaged communities in the Inyo-Mono planning region, as determined from 2000 U.S. Census data.

Appendix E: Outreach brochure



What is an Integrated Regional Water Management Plan?



An IRWM Plan is a voluntary and comprehensive non-regulatory planning document prepared on a region-wide scale that identifies broadly-supported priority water resources projects and programs with multiple benefits. The process of creating an IRWM Plan is locally-driven and includes input from many diverse local stakeholders. An IRWM Plan investigates a broad spectrum of water resources issues including water supply, flood management, water quality, environmental restoration, recreation, land use, environmental justice, stakeholder involvement, and farreaching community and statewide interests. A key difference in IRWM Plans (as compared to other planning documents) is that IRWM Plans integrate multiple water management strategies to solve multiple priority challenges. IRWM Plans can help attract state and other funding to support regional projects. Millions of dollars have been allocated for IRWM Planning by the state through Propositions 50 and 84. Grants are awarded through the California Department of Water Resources (DWR).

Who is the Regional Water Management Group?

The Inyo-Mono IRWM Program is comprised of a broad array of stakeholders throughout Inyo and Mono Counties as well as stakeholders from northern San Bernardino and Kern Counties. Currently there are more than thirty public, private and not-forprofit entities actively working towards the goal of establishing and implementing an IRWM Plan for the Inyo-Mono region. Those involved represent interests ranging from federal, state, and local government; resource and water agencies; non-profit and conservation organizations; Native American tribal organizations; educational organizations: business interests: agriculture and ranching groups; and individuals having vested interests in how water is managed in eastern California.

Our goal is to have representation from all groups within the planning boundaries that have interests in water resources management. For a list of groups currently participating in the RWMG, please see the back panel or visit our website: www.inyomonowater.org

What is Proposition 84?

Proposition 84, Chapter 2, and Proposition 1E, Article 4 (Integrated Regional Water Management [IRWM] Grant Program), administered by DWR, provides funding for projects that assist local public agencies to meet long term water needs of the state including the delivery of safe drinking water and the protection of water quality and the environment. DWR is currently in the initial phases of the funding implementation.

What are the benefits of Regional Planning?

- Encourages a broad, long-term
 perspective
- Identifies broad benefits, costs, and tradeoffs
- Promotes sustainable resource management
- Increases regional selfsufficiency
- Increases regional drought preparedness
- Uses open forums that include all communities
- Promotes coordination and collaboration among local agencies and governments
- Uses sound science, best data, and local knowledge
- Collaboration strengthens regional clout, reduces conflict, increases benefits across the region and may reduce costs for individual agencies.



Appendix F: Sierra Water Workgroup Summit 2013 summary

June 11-13, 2013 Kings Beach, CA

On June 11 –13, at Kings Beach, CA a group of approximately 138 people gathered to discuss regional water management topics and issues specific to the Sierra Nevada at the Sierra Water Work Group Summit. Attendees included 10 of the 12 Sierra Nevada Integrated Water Management Programs (IRWMPs), regional nonprofit organizations, California state and county agency representatives, and many concerned citizens. The three days included two days of general topics in relation to water management and a third day coordinated by Inyo-Mono IRWMP that specifically focused on Disadvantaged Communities and Tribes. The days included two main plenary sessions and four breakout sessions which educated participants on many issues related to Sierra Nevada IRWMs and water management.

The Sierra Water Workgroup held its first-ever summit in July 2012, and it was a successful event. Although it was not intended that the summit would be held annually, the SWWG was approached by the California Bar Association to partner on a conference in order to include water rights discussions regarding the Sierra Nevada. At the same time, the Inyo-Mono Program Office staff was looking for a venue to hold a Sierra-wide meeting of IRWM groups and disadvantaged communities as part of its DAC grant from DWR. PO staff recognized this as an opportunity to expand the SWWG Summit, and discussions with SWWG organizers commenced in the fall of 2012. It was agreed that the Inyo-Mono portion of the summit would take place on the third day and would be completely dedicated to DAC and tribal issues related to participating in IRWM programs.

By early winter, PO staff had developed an agenda outline. Over the next few months, the topics were refined by the Program Office and SWWG organizers. The Inyo-Mono PO also sought input on tribal session topics from Inyo-Mono area tribes. Staff contacted tribal representatives via email to ask for input on suggested tribe-related panel topics. The response was positive overall, and a few people had some specific comments, such as adding a piece on tribal water rights.

Program Office staff spent the next several months recruiting panel members and focusing the scope of each panel. Because of other impending deadlines, we were not able to devote enough attention to this process until early May. It then took until early June, and even up to the week before the summit, to confirm all the panel members and moderators.

Six Inyo-Mono Program Staff members attended the 2013 Summit. Below are brief explanations of the sessions that were attended by the Program Office. To find more information on the sessions that were not attended by staff or to view Powerpoint versions of the presentations please visit <u>http://www.sierrawaterworkgroup.org/2013-summit-june-11-13.html</u>.

Tuesday, June 11, 2013

Opening Plenary: Welcome

Key Note Speaker: Jim Branham, Sierra Nevada Conservancy Executive Director

Mr. Branham explored the three myths of the Sierra and communicated that the Sierra Nevada provides 60% of the State's developed water supply, the health and water quality of waters in the headwater regions directly impacts downstream health, and that currently Sierra forests are at risk from catastrophic wildfire and are threatened by climate change. In addition he also provided the following statistics regarding funding for the Sierra's from the upcoming CA water bond.

- In the 2014 proposed water bond, less than 1% goes to the Sierra Nevada in California
- The Sierra Nevada Conservancy is currently allocated \$75 million in the water bond
- UC Merced is allocated \$10 million for climate change research in the water bond
- The bond in its current state is not passable according to recent polling data, so re-allocation of these preliminary numbers may in fact shift some funding away from environmental work in the Sierra Nevada.

Mr. Branham concluded his presentation with a call to action, emphasizing the criticality of those of us who work and live in the Sierra Nevada to strive to communicate the importance of this resource to fellow Californians in an effort to preserve the environmental wealth of this critical region of the state.

Track 1

Session 1: Bay Delta Conservation Plan

Not attended

Session 3: Forest Management Plans and Regulations

- The purpose of this panel discussion was to inform the audience of the new Forest Planning Rule and to let them know that USFS Plan updates are underway on three forest management units in the Southern Sierra (Sierra, Sequoia, Inyo). The emphasis on the panel talk was on getting involved and using your IRWM Plan to influence water components of the forest plan. Specific points brought up in the discussion were:
 - Aligning IRWM objectives with Watershed objectives in Forest Plan
 - USFS Wikispace has been set up to enable early participation and commenting on a variety of documents being created for the new Forest Plan. Any member of the public can sign on and participate in the document's development process. A complete draft of the bio-regional assessment is now available for comment! <u>http://livingassessment.wikispaces.com/</u>

- o IRWM Program participation is vital to our water resources
- The health of our forests plays a key role in water quality and quantity

Track 2

Session 2: Climate Adaptation

Holly attended

Session 4: Sierra Agriculture

Holly attended

Closing Plenary: Sierra IRWM Presentations 1

- Presentations from four Sierra Nevada IRWM regions focused on their success stories.
 - Tahoe-Sierra: During the past seven years the Tahoe Sierra IRWM has been awarded over \$16,000,000 in grant funding to support water management projects. Funding sources have included Proposition 50 awards and Proposition 84 Planning and Implementation awards. The grant funding has allowed the creation of an IRWM planning document and funding support for 28 projects. Projects include work such as the Trout Creek restoration project which included work to minimize urban flooding and enhance aquatic habitat.
 - Mokelumne-Amador-Calaveras IRWM Program (MAC): The MAC region's IRWM plan revision was recently adopted and contained updates to make it consistent with new DWR standards and guidelines, revision of objectives and goals, and to reformat the plan to allow it to be an effective planning document that will allow the region to affectively compete for grant funding opportunities. The plan revision contains 38 ranked Implementation projects which are eligible for future Implementation Grant consideration and three of which were recently submitted in the Round 2 Implementation Grant.
 - Inyo-Mono IRWM Program: Since 2008 the Inyo-Mono IRWM Program has received awards of \$2,216,000 from the Sierra Nevada Conservancy and through Proposition 84 Planning and Implementation grants. Funding has supported the initial writing and revision of an Inyo-Mono IRWM plan and seven implementation projects. The DWR DAC grant has allowed initial and continued outreach in disadvantaged communities, needs assessments, building capacity, work on a much needed alternative DAC definition and the future release of a DAC documentary specific to the Inyo-Mono region. The current and future Round 2 Planning Grant work is focused on integration, climate change data, data management, future financing research, and planning projects. The challenges in the region have included the vast size of the region, engaging stakeholders, flushing out the decision making process, and a small but growing voice in Sacramento.
 - Madera IRWM Program: The county of Madera began the IRWMP process in 2006 and officially formed the Madera IRWMP in 2010. The main highlight for the

region was in May 2011 when they were awarded the full ask for the Implementation Grant of \$9,413,947 which funded four projects including the Ash Slough arundo and sediment removal, the Cottonwood Creek, Dry Creek and Berenda Creek arundo sediment removal, the Root Creek recharge project, and the fuel reduction for forest health and fire safety in the Sierra National Forest. Other successes have included the completion of the IRWM plan, receiving two facilitation support services contracts from DWR, creation of a new member packet for DAC members and signing of 18 signatories to the MOU.

Wednesday, June 12, 2013

Opening Plenary: Sierra IRWM Presentations 2

- The opening plenary session from day two of the summit was a continued series of presentations on successes of the Sierra Nevada IRWMPs.
 - Yosemite-Mariposa IRWM Program: The Yosemite-Mariposa region's headwaters flow to the very populated San Joaquin Valley. The region's IRWM Program was formed in 2008 and since that time has been working on identifying/engaging stakeholders and developing the regional goals and objectives. In November 2012 they were awarded \$823,019 in Planning Grant funding and plan to use the funds to continue building capacity, developing objectives, revising the MOU, and developing and adopting the region's IRWM plan.
 - Southern Sierra IRWM Program: Southern Sierra work has included organization and facilitation activities, grant writing and awards including the Prop. 84 Planning and Implementation grants and DWR's Local Groundwater Assistance grant. Grant funding has allowed work on projects such as Long Meadow, Southern Sierra Climate Science Symposium, USFS Watershed prioritization process and forest plan update, and the Tulare Basin Watershed Initiative.
 - Upper Pit IRWM Program: The Upper Pit's IRWM Program gave a detailed presentation on effective collaboration.
 - Tuolumne/Stanislaus IRWM Program: The region encompasses 2,700 square miles and ranges in elevation from 1,000' to 13,000' ft. The regions IRWM Program was formed in 2009 and was awarded the Prop 84 Planning Grant in 2011. The regions IRWM Plan is set to be adopted in Summer 2013. The primary focus of the plan was water quality, local water supply reliability, better integration of water and land use management, resource stewardship, and ecosystem protection. After the initial project solicitation in fall 2012 there were 29 projects included in the Plan and eight projects were submitted in 2013 for the Round 2 Implementation grant.
 - Upper Feather River Watershed IRWM Program: Projects for the region have included almost 10,000 acres of restoration of degraded alluvial valleys and forest management to enhance upland recharge on two million acres while sequestering carbon and reducing threat of catastrophic wildfire. The above mentioned projects have been started; however, there is still much more work to

be done to complete. The new direction of the region includes increased attention to the needs of DACs, continued refinement of tribal consultation and engagement protocols, continued work with other entities including other IRWM Programs, and an update to the Upper Feather River IRWM Plan.

Cosumnes, American, Bear, and Yuba (CABY) Region: The regional IRWM planning began in 2006 and the official IRWMP adoption was in 2007. The region covers four watersheds. Recent accomplishments include Round 1 Implementation Grant award for \$ 3.1 million for 16 projects, Round 1 Planning Grant award for \$650,000 for IRWM plan update, and submission of the Round 2 Implementation Grant for \$5+ million.

Track 1

Session 1: California Water Bond

 The California Water Bond breakout session included a discussion of the availability of future water management funding from the proposed water bond. The bond was initially proposed to provide over \$11 Billion in water management funding opportunities throughout the state but through polling data feedback is likely to be reduced to a little over \$6 Billion. This reduction will hopefully be implemented throughout all state projects. While the Sierra Nevada is mentioned in the water bond there are still continued struggles in getting funding attention for the Sierra Nevada in Sacramento. If the water bond passes then it will bring future funding for IRWMs and other entities involved in California water management and preservation.

Session 3: Water Rights 1 – Water Rights Laws 101

Holly attended

Track 2

Session 2: Integrated Water Management

• All members of this panel, including the moderator, were DWR staff members. Mike Floyd talked about developing a strategic plan for the IRWM program and appealed for help via DWR's IRWM Strategic Plan website. Lew Moeller gave a status report on the State Water Plan 2013. Art Hinojosa spoke about recent planning efforts of the Department with respect to floods. The recently released Flood Futures Report and Central Valley Flood Protection Plan were highlighted as documents worth examining for further information on flood management. An interesting point to mention is that during the following break, one of the panel members was asked if DWR had realized or was likely to see any cost savings from the IRWMP efforts in distributing some of the granting workload out to the regional groups. The somewhat surprising response was no and that was no longer a formal objective of the program.

Session 4: Benefits of Headwaters Protection

This session was potentially the most valuable of the summit and should have been a plenary session. In particular, Steve Frisch argued that this year may be a politically opportune time for California to adopt a tax on water use that would fund improved water and watershed management. Most importantly, such a tax (or as Frisch called it, a public goods charge) would provide a stable, sustainable funding mechanism for water management that is isolated from intermittent bond funding. Frisch said that several trends and events in California politics may coincide this year or next to allow approval of such a concept. Senator Fran Pavley may introduce related legislation during this session. Unfortunately, Bob Deen, representing the Association of California Water Agencies (ACWA), did not share Frisch's enthusiasm for a tax on water. However, Deen distributed and explained ACWA's "Policy Principles for Improved Management of California's Headwaters". This document provides a near-perfect rationale for a water tax. Deen said that many of ACWA's members are philosophically opposed to taxes, especially on their substance of interest, and are opposed to funding a new bureaucracy that might have regulatory powers over water. Nic Enstice of the Sierra Nevada Conservancy discussed a study in progress about accounting for potentially avoided costs resulting from fuels management in the Mokelumne River watershed. Results are not yet available. Cynthia Kohler described opportunities for changing how some federal government activities could be modified to encourage better water and watershed management. For example, the widely-used standards of the General Accounting Practices Board ignores "natural capital" and thus prevents consideration of environmental and watershed-related benefits in the accounting and budgeting of many natural resources programs and projects.

Closing Plenary: Water Rights 2 – Area of Origin

This session summarized legal aspects of the often-desired goal of rural headwater areas to claim "enhanced" water rights because of the geographic location of where streamflow begins. Perhaps stemming from California's partial riparian doctrine, there is some intuitive or common-sense appeal to the idea that the geographic area where a stream or river originates should have higher priority to that water than regions where the water eventually flows by natural or artificial means. The federal Central Valley Project and the State Water Project included policy language that local (generally interpreted as the entire Sacramento River basin) water needs must be met before additional water can be exported. In 1955, a legal opinion issued by then-Attorney General Pat Brown that stated that area-of-origin protections "reserve for the areas where water originates some sort of right to such water for future needs which is preferential or paramount to the right of outside areas, even though the outside areas may be the areas of greatest need or the areas where the water is first put to use ..." remains a foundation of area-of-origin claims. The three attorneys on the panel, Tony Rossmann, Richard Frank, and Dave Eggerton, educated the audience on current thinking and case law regarding the concept. The panel generally agreed that "area-oforigin" claims were unlikely to enhance upstream water rights in a small watershed where appropriate rights are well-established downstream in the same river basin. The

session's most interesting segments often developed when the discussion veered off the primary topic. A good example was Izzy Martin's question about the definition of "reasonable use" under California water law in the context of whether it is "reasonable" to apply clean water to saline soils to grow low-value crops and pollute the receiving waters with the resultant agricultural runoff.

Thursday, June 13

Opening Plenary: Tribal Connections to Water

 Several members of the Washoe tribe joined conference attendees on the beach behind the conference center and gave an opening prayer for the day. We then re-convened the meeting inside where the Washoe Tribe's environmental director presented an overview of the significance of water resources to the Washoe Tribe, including historical and cultural connections to the Lake Tahoe basin. There was also ample time for discussion and questions, which included gaining perspectives from other Washoe Tribe members. Issues that arose included the role of science in tribal ecological knowledge and tribal activities; current hunting practices and restrictions; and the importance of collaboration among tribes and other organizations.

Plenary: DWR DAC Pilot Projects

 This session was dedicated to hearing from some of the project proponents of the seven DAC pilot project grants that have been awarded by DWR. Five of the seven project areas were represented in this session – three in person, and two through written updates. Representatives from Imperial Valley IRWMP, North Coast IRWMP, and Inyo-Mono IRWMP presented their DAC projects to the summit audience and shared either lessons learned so far and/or plans for future work, as some projects (Imperial Valley and Santa Cruz) are just getting started. Input regarding successful outreach techniques was sought from the audience, though there was little time for discussion. Once again the importance of tribal outreach was expressed.

Track 1: Disadvantaged Communities

Session 1: Legislation

- Thursday's first breakout session on the DAC track was about pending state and federal water legislation, examined from three different angles. Each of the three panelists described their involvement and experience with water legislation, and provided a unique perspective on pending California water law. The panel was moderated by CalTrout /Inyo-Mono IRWMP Director Mark Drew.
- First to speak was Kristopher Tjernell of Conservation Strategy Group, a lobbying organization that works primarily with nonprofits in the environmental field. Kris is a registered lobbyist. Kris provided his opinions, based on his years of experience

working in Sacramento on water-related legislation, on how Eastern Sierra communities can achieve legislative success at the state level.

He began by describing how the renegotiation of the water bond which provides a unique opportunity for Eastern Sierra communities to incorporate meaningful provisions into state law. The current water bond is set to go to the voters in 2014, and is, in Kris' opinion, not viable in its current iteration. It will have to be re-written, and with DACs very much on the mind of legislators in Sacramento, Kris believes that this is a great opportunity to incorporate wording into the bond that will benefit the Eastern Sierra.

To demonstrate how Eastern Sierra communities could be successful in pushing their specific agenda in Sacramento, Kris then described a few of his group's recent successes in the DAC-specific water legislation arena. During the last legislative session, AB 823 was passed, which declared that there is a human right to clean, and to have consumable water in the State of California. Kris considered this a big success for DACs in the state. A question was posed about the intent of the legislation and on how his group and others dealt with opposition from water districts and other groups worried that creating a "right" to water would require such businesses to provide water for free. Or create a basis on which communities suffering from contaminated drinking water or other problems that could litigate to seek damages and reparations. Kris stated that the real thrust of the legislation was to formally state that government programs and agencies should consider a right to water when promulgating regulations, not to force providers to give water away or open them up to legal liability. Dave Eggerton stated that he agreed with Kris that the right to water couldn't practically constitute a right to sue providers for lack of service or poor quality, but that ultimately the issue would likely be decided in the courts through a test case or two.

Next, Kris described his work on AB 145, the pending bill that would transfer the Dept. of Health's State Drinking Water Program to the State Water Resource Control Board. He said that although the bill is not law yet, it has amazing momentum given that it will require a significant amount of government reform, something that is often cumbersome and hard to get through the legislature.

Finally, Kris closed by providing his list of the most successful strategies for having your voice and agenda heard and implemented in Sacramento.

- First, coalitions are critical. The Human Right to Water bill was ultimately successful because it had a huge coalition of groups representing a massive number of voters pushing for the bill.
- Second, broaden the constituency. Kris described how he and others sought support for AB 823 from social and environmental groups, but also from religious organizations and others who may not typically be on the same side of issues.
- Third, document the issues. Government funded studies such as the UC Davis nitrate study can go a long way towards convincing legislators that a problem really exists.

- Fourth, take advantage of friends in high places. Don't be afraid to ask for help.
- Fifth, invest in media consultants to repackage old information in a new and sexy way that get the attention of groups that you may not have reached before.
- Finally, and most importantly, make your issue matter to people who matter. Find a champion for your cause that has power in Sacramento. If your representative isn't influential, work on finding one who is who will adopt your issue. If you live in an area without huge population centers like the Eastern Sierra, connect your problems to people in larger cities; they have the votes and the influence and help your community succeed. Kris closed by thanking everyone for their time.
- Next to speak was Dave Eggerton, an attorney with the El Dorado County Water Agency and an involved player in both legislative efforts and IRWMP efforts in the Eastern Sierra. He spoke about his experience with both the last water bond and the current pending bond, and how his association with AQUA helped many communities in his area gain a voice in the political process.
- Last to present was Heather Crall, an attorney working as a member of the Program Staff of the Inyo-Mono IRWMP. She described her group's efforts to inform DAC communities about enacted and pending water-related legislation at the state level. With this effort, the Inyo-Mono IRWMP hopes to both help its DAC communities comply with current regulations and help communities become more involved in the legislative process, thereby hopefully raising the voice of the Eastern Sierra in Sacramento. Heather began by describing the reasons that the Inyo-Mono IRWMP decided that doing legislative research would be a good use of funds. Many of the systems or communities in their region have very few staff members, and often these individuals have other full time jobs outside of their work on water systems. Therefore, they have no dedicated staff to do legislative research, or to connect them with lobbyists or push their issues in Sacramento. Providing updates on legislation could therefore be a much appreciated service for the region. Requires counties and the IRWMP can work together to gather information necessary for regulatory compliance and grant application. This achieves significant cost and time savings.

The Inyo-Mono started its legislative efforts by researching bills that either contained new reporting or information gathering requirements, or those that could present additional funding sources for DACs and small water systems. The first bill researched was SB-244, a piece of enacted legislation that went into effect in 2012. SB-244 is fantastic in that it forces counties, cities and LAFCOs to think about and specifically plan for the needs of their most vulnerable citizens; those living in disadvantaged unincorporated communities. Unfortunately, it also constitutes an unfunded mandate that requires cities, counties and LAFCOs to incur significant expenses without providing funds. In order to help cut some of these costs, the Inyo-Mono IRWMP is currently working with one county in the region to consolidate some mapping, information gathering, and system assessment tasks required by SB-244. Their hope is that by truly

integrating some of these efforts, they can preserve some of the limited resources available in the region for other communities and projects.

The Inyo-Mono IRWMP has also researched several pieces of pending California legislation related to funding for small community water projects. The first bill, AB-115, amends the Health and Safety Code to allow water systems to apply for funding to address certain drinking water problems as a single applicant. This encourages regional solutions that have costs benefits, and allows larger systems to apply for grants to address issues that affect small DACs. However, as written, requires some degree of consolidation of water systems, which could be a limitation in a sparsely populated region like Inyo and Mono counties.

The next piece of pending legislation, AB-21, would create a separate fund to provide grants to solve urgent drinking water problems in DACs. This new fund would eliminate some of the time consuming application requirements of the SDWSRF, requirements which often prohibit DACs from even applying for money from the fund. If passed, AB-21 could provide much more accessible source of state funding for many of our DACs.

In the future, the Inyo-Mono IRWMP hopes to continue to follow legislation, in an attempt to both aid its communities with costly compliance, and to keep abreast of developments in Sacramento that could affect the region. Ideally, having more information about pending bills will encourage community participation in the political process and eventually elevate the importance of some of the region's issues in Sacramento.

Session 3: Defining Disadvantaged Communities

Many IRWM regions have grappled with applying the DAC definition (80% or less of statewide annual median household income [MHI]) to the communities in their region. One of the tasks of the Inyo-Mono DAC grant is to re-examine this definition and investigate possible alternative metrics for identifying DACs, particularly in rural and remote areas. The three panelists represented different perspectives and approaches to identifying DACs in California. Laura August from CalEPA presented a new GIS-based tool that was recently developed to identify areas of disproportionate burden in California based on 18 indicators. Holly Alpert from the Inyo-Mono IRWMP presented a preliminary analysis of how other metrics would apply to communities in the Inyo-Mono region and was seeking input on what metrics make sense and would work in other California regions. Finally, Mike Lane from the California Rural Water Association spoke of the reality of what DACs face in terms of water issues, including barriers to selfsufficiency. While no hard solutions were developed during the session, Invo-Mono representatives walked away with a sense that they are taking a logical path with respect to examining alternative definitions and that people in other regions are supportive of such an effort.

Track 2: Tribes

Session 2: Tribal Engagement and Communication

- The objective of this panel was to learn about effective methods for reaching out to and engaging Native American tribes for the purposes of regional water planning. The session opened with an overview of the structure of federally-recognized and nonfederally recognized tribes, as well as the legal basis of consulting with and relating to tribes as sovereign governments. This presentation set the stage for further discussion of engaging tribes. Audience members then heard about recent and current efforts of the U.S. Forest Service to include tribes and traditional ecological knowledge in forest planning. The remaining speakers focused on concepts of collaboration and engagement and made the following recommendations:
 - Send informational letters when first reaching out to a tribe but then follow up the letter with a phone call.
 - Contact should be made by a person authorized to make decisions on behalf of the IRWMP.
 - Changes should be made to the Prop. 84 IRWM guidelines to direct IRWM groups to more effectively involve tribes in their planning processes and to give direction regarding tribes whose lands exist in multiple IRWM regions.
 - It is important for tribes to be able to see and review draft IRWM Plans in their entirety and not just chapter-by-chapter; one recommendation was to send out CDs.
 - Tribes should be involved in choosing facilitators for IRWM groups.
 - Get to know tribes to learn about: traditional practices, prior informed consent, outreach at tribal events, geographical isolation and travel time
 - Networking goes both ways: from regional water management groups to tribes and vice versa.

Session 4: Tribal Sovereignty

The original intention of this session was to hear from tribes about some of the sovereignty issues they face through participating in the IRWM process.

Lessons Learned from Summit

- As we discovered in 2012, offering travel and registration scholarships significantly increases participation on the part of DACs and tribes.
- Most tribal representatives, including panelists and speakers, did not confirm their participation until one or two weeks before the summit.
- We got very little response from tribal representatives whom we did not know personally. It helped to find people who knew these representatives and have them invite them to participate in the summit.
- We tried to set a very positive and constructive tone from the beginning of panelist recruitment, and we think this helped to maintain positive and constructive discussions throughout the summit.
- Inyo-Mono tribes were involved from the very beginning of topic development, but other California tribes were not. There was some disappointment expressed by some of the other California tribes at not being involved in agenda development.

Appendix G: IRWMP Needs Assessments and Technical Assistance Support Outline (Draft 8/20/2011)

The California Rural Water Association (CRWA) was officially incorporated in 1990 as 501(c) (6) nonprofit organization. As of to date CRWA consists of 29 full time employees providing support to rural communities across the state. CRWA has a total of 990 members with 925 of those being community water/wastewater systems, Municipalities, CSDs, PUDs and Mutual Water Companies. Through our support efforts in 2010 alone CRWA spent staff spent 6,752 hours assisting communities, and 432 days of training. We are dedicated to meeting the needs of water and wastewater systems by providing quality information, training and technical assistance in maintaining a high level of service to their communities.

California Rural Water Association (CRWA) through the proposed project will provide onsite technical assistance and support targeted specifically to communities within Inyo and Mono Counties. CRWA's support efforts will focus on water systems both public, and private, including tribal systems within both Counties. The projects goals and objectives will be to assist water systems with Technical, Managerial and Financial (TMF) capacity for meeting applicable drinking water laws, regulations, and long term sustainability. These support activities will also be targeted to help systems understand and implement water efficiency, and conservation measures within their particular regions. In addition, CRWA's technical support will encourage and assist disadvantaged communities in applying for state and or federal funding related to improved water management practices. The following outline provides a detailed description of the technical, managerial, and financial area's CRWA will be concentrating its efforts towards in the region.

Introduction

The 1996 federal Safe Drinking Water Act (SDWA) required states to incorporate technical, managerial, and financial (TMF) capacity into public water system operations. This requirement helps ensure that public water systems with TMF capacity have long term sustainability and are able to maintain compliance with all applicable drinking water laws and regulations.

TMF Elements

1. System Description

Does the system have a map that illustrates the location of all of the components of the water system including the:

- a. Current service area
- b. Sources
- c. Treatment facilities
- d. Pumping stations
- e. Pressure zones
- f. Storage tanks
- g. Piping with valves and hydrants noted
- h. Potential contamination hazards
- i. Projected ten-year growth boundaries

2. Certified Operators

CDPH or the Local Primacy Agency (LPA) will identify the grade of certified distribution and treatment operators that will be required for the system. Review copies of current certificates with names and grades as documentation that the distribution and treatment operators are certified for the appropriate level that is required for the water system.

If a contract operator is hired to perform the duties of a certified operator, review a copy of the operator's treatment and /or distribution operator certifications and a copy of the contract that describes the specific duties for which the operator will be responsible, the time to be spent serving the water system, and the procedures to be followed in the event of complaints, compliance discrepancies, or emergencies.

3. Source Capacity

It is virtually important a water system must have the capacity to meet the system's maximum day demand as described in California Code of Regulations, Section 64554. Additionally, it should ensure that it has suitably adequate sources of water to serve the needs of its constituents in the future. The water system must have documentation which demonstrates that it has and will have a sufficient water supply.

The possibility of drought conditions impacting the water supply must be addressed. The system should develop a water conservation plan to address potential drought conditions.

In order to accurately measure the system's actual water usage metering should be in effect and/or considered.

All sources and surrounding areas need to be protected from potential contamination hazards or threats. Review any maps of the existing service area and surrounding locations. Include the location of all water sources as well as sources of potential contamination such as waste disposal sites, landfills, feedlots, underground storage tanks, out-of-service wells, and other potential contaminants. Additionally, check documentation that demonstrates the water sources are protected from vandalism, tampering, contamination, and other threats.

4. Operations Plan

Review and provide support for an operations plan that describes all of the activities needed to maintain the system in compliance with all standards. This plan should describe the daily, weekly, monthly, and yearly tasks that would enable another qualified operator to assume the operation of the system in an emergency. The plan should also describe non-routine activities such as positive analytical results, responses to complaints, emergency operational practices, record keeping, and other duties.

5. Training

Competent management and operation of a water system is critical to providing a safe and reliable water supply to system customers. Training needs to be provided to all water

system staff including the governing board in order to ensure that everyone associated with the water system has the knowledge to competently comply with existing requirements and to be informed about new compliance requirements, new technologies, and newly identified hazards.

Review and develop a training plan for:

- a. Certified operators: Contact hours needed to maintain operator certification at the required grade for the system and other related training.
- b. Governing board: Training that covers board roles and responsibilities including ethics and financial management.
- c. Other staff: Pertinent training to enable all staff to competently perform activities necessary to the operation and maintenance of the system.

6. Ownership

Ownership of a water system should be clearly identified. Indicate the type of system ownership such as sole proprietorship, partnership, corporation, mutual, governmental agency, or other formation type.

Documents should be on file, such as copies of, legal papers for corporations, districts, partnerships, mutuals, and other organizational entities such as incorporation articles, bylaws, and governing ordinances.

Documents should be on file for all components of the water system. This includes deeds and other documentation for system owned property including land, buildings, wells, storage tanks, treatment facilities, and other components needed for the operation of the system.

7. Water Rights

A water system should have a legal right to the quantity of water necessary to assure an adequate and reliable drinking water supply. Information should be on file that describes the legal basis and authority for the diversion, extraction, or purchase of water. This may include documents such as permits, licenses, letters of authority, or other agreements showing all water rights owned or controlled by the system.

Note that for water systems designated as groundwater under the direct influence of surface water the water rights could be described as either groundwater or surface water depending upon the surface water designation by the State Water Resources Control Board (SWRCB).

8. Organization

In order to establish the lines of authority and communication between employees and management including the governing board, managers, certified operators, and clerical staff, the following should be in place:

- a. Structural organizational chart for positions associated with the water system. Specify the frequency of board meetings where appropriate.
- b. Provide another chart that lists the names and phone numbers of the specific people who fill those positions.
- c. Include on the organization chart any contract certified operators the system may utilize.

Indicate the level of certification and the number of hours for which the services of a certified operator are contracted.

9. Emergency Response Plan

In order to provide reliable water service and minimize public health risks from unsafe drinking water during emergencies an emergency response plan with clearly defined response procedures should be in place.

The emergency response plan should include:

- a. A list of all disasters and emergencies that is likely to occur in the water system's service area. Include earthquakes, fires, and disinfection failure at minimum as well as flooding, water outages, water contamination, power outages, and other potential local emergencies.
- b. The names and contact information of water system personnel including the decision makers. Identify responsibilities, and provide a clear chain of command.
- c. An inventory of system resources used for normal operations and available for emergencies including maps and schematic diagrams, lists of emergency equipment and suppliers, emergency contract agreements, and emergency water interconnections or sources.
- d. A communication network that describes a designated location for an emergency operations center, emergency contact information for equipment suppliers, emergency phone and radio communication capabilities, coordination procedures with governmental agencies for health and safety protection, technical and financial assistance, and public notification procedures.

Emergency procedures to quickly assess damage to water system facilities, including logistics for emergency source activation and repairs, procedures for monitoring:

- e. Progress of repairs and restoration, and procedures for documenting damage and repairs.
- f. A description of the steps that will be taken to resume normal operations and to submit reports to appropriate agencies.

10. Policies

Water systems should have written policies that describe procedures to be followed for given circumstances. While written policies can describe a broad spectrum of topics, at a minimum an adopted policy manual should include prescribed procedures for:

- a. Nonpayment of water charges
- b. Unauthorized use of water
- c. Hours worked and overtime
- d. Complaint responses
- e. Contract operators, if applicable
- f. Governing board activities such as regulatory responsibilities, expenditure allowances, meeting notifications, resolution adoptions, and other issues as applicable
- g. Documentation of water systems maintenance, repairs, new construction.

11. Budget Projection / Capital Improvement Plan

A 5-year budget projection should be established that lists all of the expenses and revenues of the water system. The total expenses include the operations and maintenance (O&M)

expenses of the system such as salaries, power, chemicals, monitoring, and other costs. Expenses also include the administrative expenses such as insurance and debt service as well as funded reserve accounts. These reserve accounts are the capital improvement plan (CIP), operations and maintenance reserve, contingency reserve, and other reserve accounts needed to manage the system. Revenues are all of the sources of funds the system receives including income from billing, assessments, hookup charges, reserve fund withdrawals, grants and loans, and other income.

12. Budget Control

A financial policy should include, but is not limited to:

- a. Budget control procedures in which one person records a transaction and a manager review and approves it. Describe budget controls for:
 - 1) Cash receipts and disbursements
 - 2) Bank accounts
 - 3) Payroll
- b. Financial reports prepared for review at board meetings such as:
 - 1) Customer Receivables Report
 - 2) Check Register Review
 - 3) Bank Reconciliation Report
 - 4) Budget Comparison Report
 - 5) Quarterly Comparative Balance Sheet
 - 6) Tax Returns
- c. Criteria and withdrawal guidelines for the maintenance of reserve accounts including:
 - 1) CIP Reserve
 - 2) Operations and Maintenance Reserve
 - 3) Contingency or Emergency Reserve
 - 4) Other Reserves
- d. Reporting procedures to appropriate levels of authority to ensure that there is no commingling of revenue sources.
- e. Periodic reviews of the budget status by a Certified Public Accountant or appropriately qualified financial officer of the water system to ensure continuing financial viability.

Appendix H: California Rural Water Needs Assessments Summary Data 2013

California Rural Water Association needs assessments					
TMF Element	Yes	# of Systems	%		
Service Area Map	16	17	94%		
a.sources		17	100%		
i. residential		17	12%		
ii. commercial		17	12%		
iii. light industrial		17	12%		
iv. storage tanks	1	17	6%		
b. treatment facilities	16	17	94%		
c. pumping stations	15	17	88%		
i. pumping lift stations	2	17	12%		
d. pressure zones	12	17	71%		
e. storage tanks	14	17	82%		
f. piping/valves/hydrants	14	17	82%		
g. PCAs	3	17	18%		
h. projected ten year growth boundaries	2	17	12%		
Operator Certification		17	88%		
Operator Contract		17	47%		
a. duties	9	17	53%		
b. time spent	6	17	35%		
c. complaint procedures		17	29%		
d. compliance discrepancies		17	29%		
e. emergencies		17	35%		
Source Capacity (Sec 64554)	11	17	65%		
Collection and Treatment Capacity (Sec 64554)	2	17	12%		
Future Source Capacity	5	17	29%		
Future Collection and Treatment Capacity	2	17	12%		
Water Conservation Plan	2	17	12%		
Metering		17	35%		
Security	14	17	82%		
Security/Engineering Maps	2	17	12%		
Operating Plan		17	47%		
a.routine tasks (daily, weekly, monthly, yearly)		17	53%		
b. complaint procedures		17	47%		
c. compliance discrepancies	8	17	47%		
d. emergencies	9	17	53%		

California Rural Water Association need	s asse	ssments	2013
TMF Element	Yes	# of Systems	%
e. record keeping	8	17	47%
Training Plan	7	17	41%
a. operators	10	17	59%
b. governing board	5	17	29%
c. other staff	4	17	24%
Type of Ownership	14	17	82%
a. documentation	15	17	88%
b. property deeds	14	17	82%
Water Rights	10	17	59%
Organizational chart	11	17	65%
Board meetings	13	17	76%
Employee list	12	17	71%
Contract operator info	6	17	35%
Emergency response plan	9	17	53%
a. disaster list	9	17	53%
b. emergency contact list	10	17	59%
c. System inventory	6	17	35%
d. emergency equipment/supplier list	6	17	35%
e. emergency interconnects	0	17	0%
f. EOC location	8	17	47%
g. emergency phone/radio communications	6	17	35%
h. agency coordination procedures	7	17	41%
i. technical/financial assistance	6	17	35%
j. public notification procedures	10	17	59%
k. facility damage assessment procedures	3	17	18%
I. emergency source activation and repairs	4	17	24%
m. repair progress monitoring procedures	4	17	24%
n. damage and repair documentation procedures	5	17	29%
o. Normal operations/reporting procedures	7	17	41%
Policies	11	17	65%
a. nonpayment	12	17	71%
b. unauthorized use of water	3	17	18%
c. hours worked/overtime	7	17	41%
d. complaint responses	9	17	53%
e. governing board activities	13	17	76%
f. Maintenance/repair/construction documentation	15	17	88%
5 year Budget	3	17	18%
Capital Improvement Plan	8	17	47%

California Rural Water Association need	s asse	ssments :	2013
TMF Element	Yes	# of Systems	%
Financial Policy	12	17	71%
a. budget control - cash receipts/disbursements	10	17	59%
b. budget control - bank accounts	10	17	59%
c. budget control - payroll	8	17	47%
d. financial reports - customer receivables	11	17	65%
e. financial reports - check register review	10	17	59%
f. financial reports - bank reconciliation	11	17	65%
g. financial reports - budget comparison	11	17	65%
h. financial reports - quarterly comparative balance sheet	11	17	65%
i. financial reports - tax returns	10	17	59%
j. criteria & withdrawal guidelines - CIP reserve	4	17	24%
k. criteria & withdrawal guidelines - O&M reserve	2	17	12%
l. criteria & withdrawal guidelines - emergency reserve	2	17	12%
m. criteria & withdrawal guidelines - other reserves	10	17	59%
n. reporting procedures	12	17	71%
o. CPA review	8	17	47%
Have you completed the water system and project surveys circulated by the Inyo-Mono IRWMP in mid-April?	2	17	12%
Who provides structural fire protection for your community?			
a. What other communities/neighborhoods does that agency provide fire protection for?			
b. Does that agency provide paramedic and EMT services?	0	17	0%
c. How many fire stations are there in the community?			
d. If known, when was the last time the Emergency Response Plan was updated?			
Funding - If there were unlimited funding available through the IRWM Program, what would your priority projects be?			

Appendix I: Small Water System Outreach, Survey Results and Summary

April 17. 2013 Dear Local Water Service Provider,

You have been identified as a critical player in the operation and maintenance of a small water system within your County. A series of surveys have been developed by the Inyo-Mono Integrated Regional Water Management Program (IRWMP) to help the Program Staff better understand the needs of small water systems throughout the region. By identifying system needs, the Inyo-Mono Program will work to provide resources and services to help small water systems meet the challenges they face.

If you are unfamiliar with the Inyo-Mono IRWMP effort, it is an ongoing collaborative process to plan for water resources management in the eastern Sierra. The Inyo-Mono Program Office is a small team of dedicated professionals with backgrounds in a variety of science and policy disciplines and is based out of Mammoth Lakes. Together, we plan for and seek out grant assistance to provide much needed financial resources for critical water projects in the eastern Sierra. You can learn more about us by visiting our website - <u>http://inyo-monowater.org/</u> - or by requesting additional hardcopy information with a quick note in the return envelope provided.

Enclosed are hardcopies of two separate surveys. The **General Water Systems Survey #1** is applicable to everyone. The **System Preparation for Long Term Changes in Weather Patterns #1b** is only for those systems to who answer yes to the last question in survey #1. Finally, the **Project Related Needs Survey #2**, is more focused on systems that have specific projects in mind.

We respectfully request that you fill out survey #1 (**Water Systems Survey**) and return it to us using the provided self-addressed stamped envelope. If the other two surveys are relevant to your situation, please take a few additional minutes to complete them as well.

The surveys are also available electronically on our website and can be accessed at the links below:

- 1. Water Systems Survey <u>http://inyo-monowater.org/members/small-water-system-</u> <u>survey/</u>
- 1b. Changing Weather Patterns (Part II of Electronic Version of Water System Survey)
- 2. Project Survey http://inyo-monowater.org/members/project-information-needs-survey/

If you have questions about any part of the surveys or would like to provide your answers over the phone, do not hesitate to contact our Program Staff: Holly Alpert (<u>holly@inyo-monowater.org</u>; 760-709-2212) or Janet Hatfield (janet@inyo-monowater.org; 760-387-2747).

We look forward to helping you meet the demands of being a small water system provider in the rural eastern Sierra!

Thank you,

The Inyo-Mono Program Staff

Inyo-Mono Integrated Regional Water Management Program

Water Systems Survey

The following survey was developed in an effort to better understand the needs of small water systems within the Inyo-Mono IRWM region. By taking approximately 15 minutes to respond, you are helping us to focus the efforts of our small staff to better serve your needs. The information obtained by this survey will help to provide the most relevant assistance to our region's water systems possible. Ultimately, any assistance we can provide will be a direct response to the results of this survey.

The only required question in the survey is the name of your water system. Otherwise, if you are not comfortable answering a question within the body of the survey you may opt to skip it. However, the more information you are willing to give, the better we will be able to understand and provide needed assistance and services to your water system and your community. The results of this survey are confidential and will only be used for internal purposes. The data gathered from all surveys may be presented in a generalized summary form to other interested parties, with absolutely no direct links to any specific system. If you have further questions or concerns, please contact Mark Drew or Holly Alpert at (760) 924-1008.

General Water System Information (*Required)

- 1. What is the name of your water system? *
- 2. Is your water system currently operating under permit?

If so, who is the permit issued by?

- ^O Not currently permitted
- California Department of Public Health
- County Environmental Health Department
- Other:

3. Does your system have a Water Operator?

If so, please indicate below his/her certification level.

- No Water Operator
- Level 1
- Level 2
- Level 3
- Water Operator but no "official" certification
- Other
- 4. Who analyzes your water quality samples? Check all that apply

	 Water Operator Other Staff/Board member Outside consultant Local or State government official No samples taken/water not tested Other:
5.	Who interprets your water quality results? Check all that apply Nobody Water Operator Other staff/board member Outside consultant Local/State government official Other:
6.	Is your water source intake achieved through ground water (wells), surface water or both? Groundwater Surface Water Both Other:
7.	Are your current rates sufficient for building capital improvement funds and covering operating and maintenance costs? Ves No
8.	If you answered no to the question above, do you have the means to determine adequate rates for maintaining your system? ^O Yes ^O No

9. Please indicate the level of concern for your system on the following topics:

	No Concern	Limited Concern	General Concern	Moderate Concern	Extreme Concern	
Water Quality	0	0	0	0	0	
Inadequate water supply for drinking	0	0	0	0	0	
Inadequate water supply for fire protection	0	0	0	0	0	
Inadequate water pressure	0	0	0	0	0	
Aging infrastructure	0	0	0	0	0	
Inadequate wastewater infrastructure	0	0	0	0	0	
Inadequate staffing	0	0	0	0	0	
Storm water and flood protection	0	0	0	0	0	
Sustainable Capital Improvement Funds	0	0	0	0	0	

- 10. Is your agency confronted with arsenic removal as part of the treatment process, and if so, what is the method used to reduce the arsenic levels? *Please briefly describe the treatment process used to reduce arsenic levels in the "Other" box if you answered yes to this question.*
 - O Yes
 - O No
 - O Other:
- 11. Is there anything else unusual or problematic about your water sources? If yes, please explain. (*ie. High arsenic levels, diminishing water supply, etc...*)
- 12. Are your system components accurately mapped?

(wells, valves, treatment facilities, etc..)

- O Yes
- O No
- O Unsure

13. If you answered no to the question above, what assistance would be useful in order to accomplish mapping needs? *Check all that apply.*

- Map of certain system components (valves, wells, pipes, treatment facilities, tanks, water sources, etc....)
- Map of Potentially Contaminating Activities in the system's vicinity (system contamination threats)
- Overall map of system (including components, threats, etc...)

Other:

14. What operational changes to your water system would help your system operate more sustainably in the future?
 Improved water conservation strategy (education, rebates, leak detection) Changes to current rate structure Changes to water rights Alternative energy program Other: 15. Are there any regulations (Federal, State or Local) for which your system is out of compliance? If your answer is Yes, and you would like to provide us which regulations by which your system is challenged, please indicate them in the 'other' box.
 No Unknown Other:
16. Which of the following weather-related events are of concern for your system? Check all that apply Drought Large rain events Large snow events Rain-on-snow events Flood Wildfire Other:
 17. Does your system maintain a current Emergency Response Plan? No No, assistance would be appreciated to develop a Plan Yes, current plan in place Yes, but plan is in need of updates Other:

- 18. Please indicate below any challenges you face in participating in the Inyo-Mono IRWM Program. *Check all that apply*
 - Not difficult, I am a regular IRWMP participant
 - Time commitment for participation is too high (too many meetings, emails, etc...)
 - IRWMP meetings times are not compatible with staff/board schedule
 - Lack of skill necessary to develop and submit a project
 - Lack of Staff to perform grant administration, even if grant funds were awarded
 - Not interested in State grant funding
 - Not interested in working with other water-related stakeholders
 - Too difficult to understand what the IRWMP does
 - Other:
- 19. The text box below has been provided to give you the opportunity for any other feedback on the types of information or assistance we could provide, or use this opportunity to further articulate the challenges your system faces. There is no word limit.



- **20. Is weather information helpful for the management and operation of your system?** If you answer Yes to this question, you will be asked to fill out several additional questions related to the types of weather data and information we may be able to provide. Otherwise this is the final question of the survey.
 - O Yes
 - No

THANK YOU!

System Preparation for Long Term Changes in Weather Patterns (Part II: Water Systems Survey)

You answered Yes to the last question of the Water Systems Survey, indicating that you find weather information helpful in the management of your water system. Please take a few additional moments to give us a bit more detailed information about what you currently use and what other information may be useful.

21. Where do you obtain your weather forecasts?

Please be as specific as possible (i.e., if you use the internet, please give us which site you use, radio stations, newspapers, etc...)

22. What types of weather information or data would be helpful in managing your system? *Check all that apply*

- Temperature
- Amount of precipitation
- □ Timing of precipitation
- □ Snowpack
- Streamflow timing
- Streamflow amount
- Other:
- 23. What potential changes in weather patterns are you concerned about with respect to your water system? Please as specific as possible.
- 24. How does your system currently prepare for and deal with drought conditions? Check all that apply



- Educate customers on water conservation
- Implement water use restrictions
- Implement rebates for water saving devices
- □ Increase water storage capacity
- Other:

25. Are there infrastructure changes to your water/wastewater system that you may need or want to make to deal with changing weather patterns?

- 26. Are there operational changes to your water system that would help you deal with changing weather patterns?
- 27. A lot of weather and climate information is developed by government agencies and universities, but much of it fails to reach its intended audience, such as water system operators and managers. Please indicate the best ways for you, your board, and your staff to gain access to such information.
 - □ Internet/ website
 - Email materials
 - Hardcopy materials
 - □ In-person training
 - □ Webinar (web-based) training
 - Not sure how to use any of this information
 - Other:

Project Related Needs Survey

The following survey was developed in an effort to better understand project specific data and informational needs of small water systems within the Inyo-Mono IRWM region. The IRWM Program aims to identify water-related project needs in the region and find funding to support those projects. We realize the project development and implementation process is often difficult for small systems like yours. The goal of this survey is to better identify the types of information we, as the Inyo-Mono IRWMP, can provide to small water systems throughout the region to enable them to more easily participate in the IRWM grant program.

The only required question in the survey is the name of your water system. Otherwise, if you are not comfortable answering a question within the body of the survey you may opt to skip it. However, the more information you are willing to give, the better we will be able to understand and provide needed assistance and services to your water system and your community. The results of this survey are confidential and will only be used for internal purposes. The data gathered from all surveys may be presented in a generalized summary form to other interested parties, with absolutely no direct links to any specific system. If you have further questions or concerns, please contact Mark Drew or Holly Alpert via email or at (760) 924-1008.

* Required

- 1. What is the name of your water system? *
 - For Example: Aging well casing in need of replacement

2. Enter your project(s) name and tell us a little about it.

3. Is your water system staff/board capable of developing an improvement project from the conceptual state to the implementation stage?

- \square No, I don't know the steps and am unsure of where to get help
- No, I don't know the steps but know where I can turn for assistance in project development
- \square Yes, I know the steps but don't have the resources for project development
- \square Yes, I know the steps and can develop a project that is ready for implementation funding
- Other:

4. Do you have a staff/board member who is willing and capable to administer grant contracts and manage grant reporting required on the project?

- O No
- Yes
| 5. | What, if any, type o | f permitting do you an | nticipate prior to beg | inning work on your |
|----|----------------------|------------------------|------------------------|---------------------|
| | project? | | | |

- 6. Given that any project implemented using State funds by your organization would need to pay prevailing wage and will require a labor compliance program, will you need help with labor law compliance?
 - O No
 - O Yes
- 7. If you answered yes to the question above, please indicate where you will turn for Labor Compliance assistance in the space provided below.
- 8. Given that the California Environmental Quality Act (CEQA) and/or the National Environmental Quality Act (NEPA) will at some level apply to your project, will you need help with compliance?
 - Yes
 No
 Other;
- 9. Do you know where to find more information on CEQA/NEPA and how it will apply to your project? If not please answer No. If Yes, please let us know where you intend to seek assistance.

10. Do you have a good sense of how much your project may cost?

If you have a figure please include it in the other box.

- O Yes
- O No
- Other:

11. What tools will you use to estimate realistic costs?

In the other box, please give some information about the specific resources you may use.

- Personal/Staff Experience
- □ Online Resources
- □ Local Contractors/Supply Vendors
- □ Other Similar Project Budgets
- □ Not sure
- Other:
- 12. Do you have money available for operations and maintenance costs once construction is completed on your project?

○ Yes

0	No	
0	Other:	

13. What types of information would be most useful to you in assessing project costs?

	Not Very Useful	Useful	Very Useful
Material costs (pipe, pumps, tanks, automation systems, hydrants)	0	0	0
Design costs (consultant fees, engineering costs)	0	0	0
Compliance costs (CEQA documents preparation, labor law)	0	0	0
Standard Permitting Fees (County, State, Federal)	0	0	0
Labor costs (prevailing wage rates)	0	0	0
Time commitment estimates for water system staff and board	0	0	0
Vendor information (what contractors are available to do work in the local area)	0	0	0

14. Can you perform some or all of the needed work to your system with in-house labor? *Architectural, engineering, or design work*

- ^O Yes, all work can be done in-house
- ^O Yes, some work can be done in-house
- ^O No, all work will need to be contracted out
- Other:
- 15. Do you have access to consultants/firms/contractors that may be able to provide additional services needed for your project? If you know the name of the firm/consultant/contractor, please provide in the 'Other' box.
 - O Yes
 - O No
 - O Other:

16. Please indicate below any challenges you face in participating in the Inyo-Mono IRWM Program. *Check all that apply*

- □ Not difficult, I am a regular IRWMP participant
- \square Time commitment for participation is too high (too many meetings, emails, etc...)
- \square IRWMP meetings times are not compatible with staff/board schedule
- \square Lack of skill necessary to develop and submit a project
- Lack of Staff to perform grant administration, even if grant funds were awarded
- Not interested in State grant funding
- \square Not interested in working with other water-related stakeholders

\Box	Too difficult to understand what the IRWMP does	

100 01	noun	.0	<u>u</u>
Other:			

17. The text box below has been provided to give you the opportunity for any other feedback on the types of information or assistance we could provide, or use this opportunity to further articulate the challenges your system faces. There is no word limit.



THANK YOU!

Summary of Responses

There were 37 respondents to the survey, 29 of whom also answered the climate- and weatherrelated questions. Of the 29 systems, 26 are dependent solely on groundwater resources (including one artesian spring and one spring under the influence of surface water). Two systems utilize surface water, and one system uses surface water and groundwater.

Question: Is weather information helpful for the management and operation of your system?

If respondents answered "Yes", they were directed to the next question: What types of weather information or data would be helpful in managing your system?

All 37 respondents answered this question, as it was the last question in the water system survey. Some went on to answer the other questions in the climate/weather section, and some stopped with this question. Eleven respondents answered "yes" to this question. Of those 11 respondents, they listed the following types of weather information/data that would be helpful in managing their systems:



Question: Where do you obtain your weather forecasts?

Only a few systems answered this question. Seven systems responded that they use forecasts from the National Weather Service. Presumably, most people access these forecasts through the Internet (http://www.nws.noaa.gov/).

One system responded that its operator uses weather forecasts from the *Inyo Register* and also uses his own general weather observations. One system has an on-site meteorological station. One system uses forecasts from the Weather Channel website (<u>http://www.weather.com/</u>).

Question: Which of the following weather-related events are of concern to your system? Respondents could choose more than one option, so the number of responses to the question totals more than the number of respondents.



Question: What potential *changes* in weather patterns are you concerned about with respect to your water system?

Very few respondents answered this question, which was open ended. Responses included:

- No concern; insulated from weather pattern changes (groundwater system)
- Lack of rain; increasing/prolonged drought (groundwater systems)
- Reduced snow water content; early/faster runoff; increased daytime and nighttime temperatures; increased wind events (surface water system)
- Lack of snowpack (groundwater system)

Question: How does your system currently prepare for and deal with drought conditions?

Only ten water systems responded to this question, and several of these (6) responded that they do not currently have plans or programs in place to deal with drought conditions.

The most responses (7) indicated that they have programs to educate customers on water conservation. Another four systems implement water use restrictions, and three systems have increased water storage capacity. Other responses (one each) included: rebates on water-saving devices, use of recycled water, and participation in projects to reduce water demand.

Question: Are there infrastructure changes to your water/wastewater system that you may need or want to make to deal with changing weather patterns?

The majority of respondents did not answer this question at all. Three systems answered "no", that they do not need to make any changes to infrastructure.

This question was open-ended. Four systems each provided unique answers:

- Relocate town transmission main
- Add storage tank and booster pump (for pumping at night)
- Add storage tank, install water meters
- Improve measuring stations to more accurately measure flows, add remote reading capability to measuring stations, expand recycled water distribution system, determine recycled water storage options.

In addition, two systems provided answers to the next question that more appropriately fit within this question:

- Better collection manifold
- Additional storage for true off-peak pumping

Finally, one respondent succinctly summarized the situation of most in the area: "No water, no town."

Question: Are there operational changes to your water system that would help you deal with changing weather patterns?

Four systems answered "no" to this question. Another two systems provided narrative answers, but they more appropriately fit in the previous question related to infrastructure changes. There were no other answers to this question.

Drawing from the answers to the previous question, we could infer that off-peak (night) pumping of groundwater would be a desired operational change, as would more accurately measuring flows/water use (due to improved equipment/technology or installation of water meters).

Question: What operational changes to your water system would help your system operate more sustainably in the future?

Although this question is similar to the previous question, the previous question asks about operational changes for climate change adaptation vs. more general system sustainability, which is the goal of the current question. Many systems chose the answers provided, and a few provided their own narrative answers:

> Improved water conservation strategy (education, rebates, leak detection): 14 systems

- > Changes to/establish a rate structure: 10 systems
- > Alternative energy program: 6 systems
- Changes to water rights: 2 systems
- Education on life expectancy of water infrastructure, install new tank, install new system:
 1 each

Question: A lot of weather and climate information is developed by government agencies and universities, but much of it fails to reach its intended audience, such as water system operators and managers. Please indicate the best ways for you, your board, and your staff to gain access to such information.

This question was included as a way to assess whether systems have difficulty accessing information provided via the internet and email. Somewhat surprisingly, respondents indicated that the internet and email were the best ways to distribute information, although hardcopy materials and in-person or web-based trainings are also viable methods.



Appendix J: Inventorying Water-Related Greenhouse Gases in Big Pine CSD and Bridgeport PUD

Background

In accordance with the updated Climate Change Plan Standard in the Proposition 84 IRWM Guidelines for Integrated Regional Water Management Plans (IRWMP) in California (DWR 2012), the Inyo-Mono IRWM Program continues to assess greenhouse gas (GHG) emissions from water-related activities in the region.

The nexus of energy and water is increasingly identified as having large potential for greenhouse gas (GHG) mitigation. In California, 19% of the state's electricity and 30% of the state's non-power plant natural gas is used for conveyance, treatment, distribution, and end use of water (Climate Action Team 2008).

Water system-specific baseline GHG emissions assessments are very important because identifying the largest sources of water-related emissions helps to prioritize projects by taking into account the potential emissions reduction, which often corresponds closely to cost savings and thus creating a more accurate cost-benefit analysis. Conducting a similar analysis on the IRWM region scale will ideally improve project prioritization and cost savings for the Inyo-Mono region.

Just as every drop of water counts, every molecule of CO_2 not emitted into the atmosphere helps reduce the extent of climate change. Additionally, water movement and treatment costs money; the cheapest water is water not used. Environmental and monetary costs taken together provide strong justification for addressing GHG emissions. Of course, there is also the strong likelihood that increasing attention to and regulation of emissions will force water purveyors to calculate and track their emissions. Beyond identifying inefficiencies and preparing for a carbonconstrained future, conducting a GHG inventory allows emitters to show that they value the environment and gives them the ability to highlight efficiency measures they are taking or they plan to take.

Inventory Sources

Emission Sources

Figure 1 shows the potential GHG emission sources relevant to water utilities. Direct emissions are those emitted by activities within the region itself (i.e. motor vehicles) while indirect

Emissions Type	Source Sector	Source Category
Direct (Scope 1)	Transportation	On-road mobile sources (motor vehicles: passenger cars, trucks, buses) Off-road vehicles (boats, snowmobiles, lawn and garden equipment, etc.)
	Fuel combustion	Natural gas combustion (residential and commercial) Other fuel combustion (propane, wood, etc.)
	Waste	Wastewater treatment
Indirect (Scope 2)	Energy	Electricity consumption Wastewater treatment

Figure 1. Direct and indirect water-related emission sources

emissions are emitted outside of the region, but are due to activity in the region (i.e. electricity generation). Wastewater is included in both categories because the utility may have onsite treatment or may send its wastewater to another site for treatment. Direct and indirect emissions are commonly referred to as Scope 1 and Scope 2 emissions, respectively. There is a Scope 3 that includes activities such as workers' commutes and emissions from the manufacture of goods used by the region (lifecycle emissions), but these are not included in this inventory.

The six internationally-identified greenhouse gases are: Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur hexafluoride (SF₆). This inventory estimates the emissions of the first three, assuming that HFCs from refrigeration are negligible and PFCs and SF₆ are not emitted during water-related activities in question. Each of the six GHGs has a "global warming potential," which allows the comparison on a common metric. Some GHGs are more potent than others and some stay in the atmosphere for a longer period of time. Applying the global warming potential to each of the non-CO₂ GHGs results in a CO₂-equivalent (CO₂e) that is expressed in Metric Tons (MT).

When discussing the energy-water nexus, it is important to identify which steps of the water use process produces the most emissions in order to prioritize water projects. Those steps with the most emissions are often the most costly, due to energy prices. Figure 2 shows the different stages of water-energy emissions. This inventory does not look at Scope 3 emissions, such as employee commutes or end water user (i.e. water heating), although that may be possible to calculate in future inventories using resources such as the Residential Energy Consumption Survey.

Stages of Energy Use in Water



Figure 2. Different points where energy and thus emissions are embedded in water

Base Year and Inventory Frequency

In California, a base year of 2005 is preferable because it aligns with legislative goals such as AB 32 and SB 375. Unfortunately, complete fuel and electricity use records for past years were not readily available from the utilities addressed here. With that caveat, it is important to establish a year that has consistent and accurate data across all of the emitters in question. Based on these criteria, the year 2013 was chosen as a baseline for the Big Pine CSD and Bridgeport PUD. There were three previous GHG inventories conducted in 2012 for water systems in the Inyo-Mono region, and the baseline year chosen was 2011. We have electricity data for 2012 and 2013 for Big Pine CSD, and because electricity is over 98% of the energy used by the district, BPCSD could be roughly compared to Bridgeport Public Utility District, particularly in terms of electricity for wastewater. We have electricity data for 2011 for Bridgeport PUD, and electricity is over 90% of the energy used by the district, BPUD could be roughly compared to Mammoth Community Water District, June Lake Public Utility District, and Indian Wells Valley Water District. In order to identify emission trends, such as the effects of deliberate efficiency and conservation measures or indirect effects (i.e. economic trends), inventories should be conducted at least every five years, although annual inventories are preferable. Going forward, we recommend that the water utilities actively track the sources identified in this inventory.

Quantifying Emissions

Quantifying GHG emissions follows a straightforward path: multiplying "activity data" by "emissions factors" and the global warming potential (GWP). Activity data refer to the amount of fuel consumed, vehicle miles traveled, population served, etc., and emissions factors are the amount of each GHG emitted by each activity (i.e. burning fuel or driving miles). Global warming potential weights each of the GHGs in terms of strength and the amount of time they spend in the atmosphere. Each relevant fuel source and type is discussed below.

Direct Emissions (Scope 1)

Stationary Combustion

Stationary combustion is the burning of fuels within the region (water district) to generate heat or electricity. For water districts, this generally means remote generators or boilers to create heat for buildings or processes such as wastewater treatment. Emissions for natural gas, propane,

and diesel are each calculated by multiplying the amount of fuel by the emissions coefficient for CO_2 , N_2O , and CH_4 . Big Pine CSD does not use natural gas and does not use any diesel. The district uses propane for heating the administration building, calculated using the stationary source formula. Bridgeport PUD uses gasoline for a few backup generators and for vehicles, but does not differentiate them. For this inventory, all gasoline emissions were calculated using the mobile sources equations (see below). Bridgeport PUD uses propane for heating the administration building, calculated using the mobile sources equations (see below).

Mobile Emissions

Mobile emissions apply to the vehicles used by the utility districts to service and build infrastructure and to read water meters if applicable. Calculating CO_2 emissions is straightforward: gallons of gasoline and diesel were provided by each utility, and those amounts were multiplied by the emissions coefficient for CO_2 . Emissions of CH_4 and N_2O are more dependent on miles traveled and year and type of vehicle than gallons burned. Big Pine CSD employees use their personal vehicles and are reimbursed for gasoline. Gasoline is not included in this inventory because it would be too difficult to separate out at-work versus to- and fromwork trips, although this could likely be done in future inventories if requested. Bridgeport PUD supplied gallons of gasoline, but not miles. Additionally, BPUD uses gasoline for stationary combustion and vehicles, but does not differentiate them. For this inventory, all gasoline emissions were calculated using the mobile sources equations, based on gallons, with coefficients for CO_2 , N_2O , and CH_4 .

<u>Wastewater</u>

Direct emissions from wastewater treatment arise from the actual biologic process of decomposing the organic materials in wastewater when methane and nitrous oxide are released and from on-site electricity or heat generation from burning fossil fuels. Big Pine CSD uses aerobic digestion, which releases negligible amounts of CH_4 and N_2O . Bridgeport PUD uses aerobic digestion, which releases negligible amounts of CH_4 and N_2O . In accordance with the Local Governments Protocol and the U.S. EPA, these negligible process emissions are not included in the inventories.

Indirect Emissions (Scope 2)

Purchased Electricity

Purchased electricity tends to be a large source of emissions, but is indirect because the fuels are burned at the power plant in another location while the electricity demand and use is in the water district. Nationally, the U.S. Environmental Protection Agency (EPA) maintains a database of region-specific emissions factors based on the mix of fuels (i.e. natural gas, coal, renewable, etc.) used at each power plant. Most California utilities, either in the past or currently, calculate a specific and more accurate emissions factor. Los Angeles Department of Water and Power (LADWP), the electricity provider to BPCSD, last updated their emissions factors for CH_4 and N_2O in 2007 and CO_2 in 2012 (sources and coefficients on "Electricity" tab of full inventory). For Southern California Edison (SCE), the electricity provider to BPUD, last updated their emissions factors on "Electricity" tab of full inventory).

Wastewater

Indirect emissions from wastewater treatment include the purchased electricity used to transport, treat, and dispose of wastewater and its byproducts. Big Pine CSD owns and manages its wastewater treatment plants. The electricity purchased from LADWP to run the lift stations, machinery, aerators, etc. are included in their respective inventories. The emissions from this purchased electricity are calculated as above ("Purchased Electricity purchased from SCE to run the plants are included in their respective inventories. The emissions from the plants are included in their respective inventories. The electricity purchased electricity are calculated as above ("Purchased Electricity purchased from SCE to run the plants are included in their respective inventories. The emissions from purchased electricity are calculated as above ("Purchased Electricity").

Comparing Water Systems in Terms of Emissions

A common metric must be used in order to fairly compare GHG emissions across water systems. Emissions per population served would be convenient, but due to the large seasonal population swings, this is not a reliable method for the Inyo-Mono region. Emissions per amount of water (metric tons of CO₂-equivalent per million gallons of water procured and wastewater treated) may be a better common metric, but the source of the water each district relies on (groundwater vs. surface water) largely determines how much electricity is needed to extract the water. Big Pine CSD is somewhat unique in that it does not own or operate the groundwater wells supplying water to its system. Because LADWP owns and operates the wells, BPCSD does not have any control or influence over the type of pumps used or the management of those pumps. This makes it very difficult to compare BPCSD to other water systems in the Invo-Mono region. Bridgeport PUD provided water production (supply) and wastewater treatment numbers in millions of gallons, which is displayed as a line in figures contained in the Inventory Summary. In future efforts, we hope to explore the idea of finding a common metric, possibly using the amount of water handled by each district or integrating monthly populations, if either of those data are available, or some other metric discovered through a more extensive literature review.

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Summary: Big Pine Community Service District Greenhouse Gas & Energy Inventory

Background

The Big Pine Community Service District was formed in 1968 and provides commercial and residential water delivery and wastewater collection, treatment, and disposal to 348 residences and 16 businesses. The District is located just south of Bishop, CA, in the Eastern Sierra. The wastewater treatment plant and sewer collection system both went into operation in 1972. In 1982, the District began operating and maintaining the water distribution system under a 10-year lease/purchase option with the Los Angeles Department of Water And Power (LADWP). The District acquired ownership of the system and later, under the terms of the Inyo/LA Water Agreement, was reimbursed for the cost of the District's improvements to the system.

LADWP continues to supply water to the District through pumping groundwater. Water is then delivered into the Big Pine CSD's water system, where it is distributed via gravity to the District's customers. LADWP supplies up to 500 acre-feet of water per year to the Big Pine system, easily meeting the average demand of 350-400 acre-feet per year. If demand goes over 500 acre-feet per year, the District will be charged a per-unit fee.

In the spring of 2014, the Inyo-Mono Integrated Regional Water Management Program (IRWMP) contracted the Sierra Nevada Alliance to conduct a greenhouse gas and energy use inventory for the District. The funding was made possible by a grant from the California Department of Water Resources.

The Inventory

The District purchases electricity from Los Angeles Department of Water and Power (LADWP) for its sewer treatment (machinery, pumps, and aerator) and its administration building (office lights and swamp cooler for the summer). The District uses propane to heat its administration building in the winter. Because LADWP owns the groundwater pumps and supplies water to the system, we are considering the related emissions to be "Scope 3" emissions (see Methodology). As such, the electricity for those pumps is not included in this inventory, although it could be included in future inventories if requested. District employees use their personal vehicles for District-related tasks and are reimbursed for gasoline. Gasoline is not included in this inventory because it would be too difficult to separate out at-work versus to- and from-work trips, although this could likely be done in future inventories if requested.

Stages of Energy Use in Water



Electricity usage and treatment data were available for 2012 through early 2014. Gasoline and

propane usage was available for 2013. For 2013, the year with all data available, electricity accounted for 98% of the District's energy use, based on greenhouse gas emissions measured in carbon dioxide equivalent (CO_2e). Propane use disappears in the summer as there is no heating required. Because of these considerations, electricity is the focus of this inventory. Further, because the emissions associated with water supply are both part of LADWP's water operations and under LADWP's control, *electricity used for wastewater collection and treatment will be the main focus of the inventory*.



The graph above is the overall inventory for 2013, which was chosen as the baseline year because it was the year for which complete data were available. Propane for office heating was a very small component of emissions (about 2%). It is interesting that the amount of wastewater treated fluctuates about every three months, while the electricity used to move and treat effluent stays relatively steady. This may point to a baseline amount of electricity needed for wastewater operations. It should be noted that this is just a glimpse into operations – one year out of decades. The two years of available electricity data are 2012 and 2013, which we compare below.



From the graph above, 2012 looks more like one would expect: more wastewater in the summer as the temporary population increases. We cannot explain the fluctuations in amount of wastewater treated that seem to be occurring on about a three-month cycle in 2013. Even in 2012, electricity use does not seem to be correlated to wastewater treated. Energy used per treated is called "emissions intensity." See the two Emissions Intensity graphs for 2012 and 2013 below. The emissions intensity does seem to increase in the winter, when less effluent is being treated. As noted above, this may be due to the baseline amount of electricity required to keep the district operating. Even so, these months are the likely target for efficiency upgrades through infrastructure improvements or changes in management practices.



The months that show the highest emissions intensity tend to be November through March, with the highest spike in December/January. Interestingly, there seems to be a spike in September in both 2012 and 2013, but not nearly as large as the winter spike. The increases in emissions intensity are generally showing the baseline power use – the amount of wastewater decreases, but a certain amount of energy is still being used to keep the facilities and equipment running. Oftentimes, changes in facility management can reduce the baseline and high-use-time power. Almost always, upgrading equipment and facilities can reduce overall energy use and cost.

Recommendations and Next steps

Recommendation #1: Focusing on changes in management practices in the winter months – roughly November through March – is the most immediate and inexpensive way to save costs by reducing energy use. There appears to be a baseline amount of energy needed to run the wastewater treatment and administrative operations – this baseline should be targeted. Based on the this analysis, the first step would be to survey any changes in facilities – physical, technological, or managerial – in order to identify the reasons for the fluctuating effluent treatment in 2013 as compared to 2012. If the District determines that the cause(s) for the changes in 2013 compared to previous years was/were external, we suggest moving on to the following recommendations more quickly.

Resource: *California Energy Commission: Energy Water Connection*. The California Energy Commission's Process Energy Office provides resources to help water professionals control energy costs, including detailed information on proven methods and technologies; articles, fact sheets, and reports; and more. http://www.energy.ca.gov/process/water/index.html

Recommendation #2: Look for potential facility and equipment upgrades. If changes in management practices (i.e. timing, heating) are not apparent or available, upgrading equipment and facilities (e.g. more efficient pumps) is a good place to start. Pumping (e.g. lift stations) requires much of the energy used for water treatment. New, more efficient pumping systems could reduce energy use by up to 20%ⁱ. In addition, we recommend installing water meters at each service connection. Water meters have been shown to reduce water use on the order of 40%,ⁱⁱ thereby reducing energy use and GHG emissions. Further, it is likely that small water systems will be required by the State of California to install meters in the coming years.

Recommendation #3: Identify funding for efficiency and conservation upgrades. There are two programs in California that can provide financing for energy efficiency, conservation, and renewable energy: the PACE program and the HERO program. Both programs provide low-interest loans, which are paid back using cost savings with a property tax assessment. While both programs require the jurisdiction (Inyo County) to approve a simple resolution adopting the program, the HERO program does not require the County to create a financing mechanism because it takes advantage of one already in place in California. Additionally, the HERO program provides the same loans for water conservation projects.

For more information on PACE: http://pacenow.org For more information on HERO: https://www.heroprogram.com

Projects to fix leaky pipes and improve end-use efficiency can be promoted as both water- and energy-saving investments. There is a new state funding source for projects that reduce both energy and water use at the same time. The California Department of Water Resources is currently finalizing a <u>Water-Energy Grant Program</u>, which will be available in early 2015. The draft guidelines are currently available and workshops are being held around the state. More information on this program can be found here: <u>http://www.water.ca.gov/waterenergygrant</u>

Recommendation #4: <u>Consider installing solar panels on buildings and/or underutilized lands.</u> Mammoth Community Water District, while larger, successfully installed a 1 MW solar array on a retention pond in 2011. The system provides about 80% of the power needed for their wastewater treatment plant, is operating at about 115% efficiency due to the cold weather and clear air, and will pay for itself in about 10 years. While MCWD was in the fortunate position to pay the upfront costs, there are many financing options available. Contact MCWD and visit http://www.mcwd.dst.ca.us/solar-facility.html for more information.

Next Steps

- Pursue the above recommendations.
- Keep your inventory up to date. Use the instructions above and contained in the Inventory Excel file to fill in rest of 2014. In particular, track changes as October approaches. Feel free to contact the Sierra Nevada Alliance for any support over the coming year.

Attachments (2)

- <u>Full Inventory as Excel workbook</u>. There is much more detail and many more graphs in the file. It is organized both by use (wastewater, and administration) and by energy type (electricity and propane). There is also a summary tab, "Inventory." <u>Instructions for completing 2014</u>: This file is set up to allow the district to complete the inventory for 2014 by filling in energy data for each month in the colored tabs. If full propane data from 2012 becomes available, that can also be filled in using the colored tabs (Admin). Electricity data for 2014 should be entered in the "Wastewater" tab and propane should be entered in the "Admin" tab. All of the graphs and the non-colored tabs will update automatically.
- 2. <u>Methodology</u>. How this inventory was conducted.

Sources

Most background on the Big Pine Community Services District was taken, at times verbatim, from the District's website. Accessed here: <u>http://bigpinecsd.org</u>. Dennis Tilleman provided information on the LADWP water supply agreement.

Summary: Bridgeport Public Utility District Greenhouse Gas & Energy Inventory

Background

The Bridgeport Public Utility District (PUD) was established in 1947 to provide water and sewer service to the community of Bridgeport. The district boundaries encompass about 177 acres within the community of Bridgeport, located in northern Mono County in the Eastern Sierra, approximately 20 miles north of the Mono Lake Basin. The Bridgeport PUD has 286 water connections and 96 sewer connections serving residential, commercial, and public customers. The Bridgeport Valley experiences an influx of tourists and second homeowners in the summer, increasing water supply and treatment demand.

The district's water supply is exclusively groundwater, from three wells in the Bridgeport Valley. While the groundwater is of generally high quality, requiring only minimal chlorine treatment, it does exceed the new maximum contaminant level for arsenic and is currently considering options for removing it. The district has storage tanks for domestic water and fire flow, with a total capacity of 535,000 gallons. Effluent is treated in sewer ponds. The district has adequate supply, storage, and treatment to accommodate all of the remaining undeveloped lots within its boundaries, although the district has no plans or identified funding to increase infrastructure capacity. A significant issue is that none of the District's connections are metered, which limits the ability to reduce water and energy use.

In the spring of 2014, the Inyo-Mono Integrated Regional Water Management Program (IRWMP) contracted the Sierra Nevada Alliance to conduct a greenhouse gas and energy use inventory. The funding was made possible by a grant from the California Department of Water Resources.

The Inventory

The district uses propane to heat its administration building, uses gasoline for its fleet vehicles, and purchases electricity from Southern California Edison for its water supply pumps and sewer treatment (lift station, grinder, pumps, and aerator) plus a little for its administration building. The administration building is on the same meter as the Cain Well (supply), so was not separated out for the purposes of this inventory.

Stages of Energy Use in Water



Electricity usage and water production and treatment data were available for 2011 through early 2014. Gasoline and propane usage was available for 2013. For 2013, the year with all data available, electricity accounted for 92% of the district's energy use, based on greenhouse gas emissions measured in carbon dioxide equivalent (CO₂e). Propane use disappears in the summer, and the on-site gasoline tank for vehicles is refilled quarterly, so it is difficult to track

monthly or seasonal changes. Because of these considerations, electricity is the focus of this inventory.





Electricity use generally correlates well with water produced and treated, as seen above. Demand for water and treatment increases over the summer due to the increase in tourists and second homeowners, as well as landscape irrigation. Energy used per million gallons of water supplied and treated is called "emissions intensity." See the three Emissions Intensity graphs for 2011-2013 below. Looking at electricity for the years 2011-2013, the emissions intensity spikes just before and after summer. While there is a baseline amount of electricity required to keep the district operating, it is unclear from this inventory why the emissions intensity spike during these months. We look at these months in more detail below, but they are the likely target for efficiency upgrades through infrastructure improvements and/or changes in management practices.





The months that show the highest emissions intensity tend to be October through March, with the highest spike in October. Interestingly, 2013 showed a smoother emissions intensity profile. The smoother 2013 profile seems to be due to an overall increase in water supply and treatment over the year, especially in the summer, with overall energy use only slightly increased over the course of the year. This may point to an "economy of scale" – there is a baseline amount of electricity needed and increases in water production and treatment only marginally increase electricity demand. Of particular note, October 2013 showed a considerable decrease in energy use compared to previous years while water supply and treatment were only slightly down compared to previous years. If the cause(s) for this can be found, they should be replicated.

Breaking it down a little further, using 2012 as an example, it appears that wastewater is more strongly correlated to energy use than water supply is - the amount of water treated tracks very closely to the amount of electricity used to move and treat the water. It appears that there is an exception in September, but it is just because of the graph scales - there was 10% less water treated and 10% less electricity used in September as compared to August. Looking at water supply, there is a strong correlation between water supplied and electricity used, with the notable exception of September-October. According to the data provided, almost the exact same amount of electricity was used in September and October even though half the amount of water was produced in October. The preliminary conclusion we draw is that wastewater treatment emissions are more infrastructure-based while water supply emissions are more management-based. Because wastewater treatment is consistently correlated with electricity used, improving the efficiency of the lift stations and treatment plant should result in lower emissions. The disconnects (lack of correlation at certain times) between the amount of water supplied and the electricity used to run the pumps supplying that water may point to potential changes in management (e.g. amount of time running pumps). It is important to note that more water is supplied than treated so the absolute numbers are larger (see scales in the two graphs below).





Recommendations and Next steps

Recommendation #1: Focusing on changes in management practices in the months October through March is the most immediate and inexpensive way to save costs by reducing energy use. Based on the this analysis, the first step would be to survey any changes in facilities – physical, technological, or managerial – in order to identify the reasons for the leveling out and decrease in emissions intensity; particularly for 2103. If the utility determines that the cause(s) for the changes in 2013 compared to previous years was/were external, we suggest moving on to the following recommendations more quickly.

Recommendation #2: Look for potential facility and equipment upgrades. If changes in management practices (i.e. timing, heating) are not apparent or available, upgrading equipment and facilities (e.g. more efficient pumps, lifts stations, treatment facilities) is a good place to start, especially for wastewater movement and treatment, as mentioned above. In addition, we recommend installing water meters at each service connection. Water meters have been shown to reduce water use on the order of 40%,^{III} thereby reducing energy use and GHG emissions. In addition, it is likely that small water systems will be required by the State of California to install meters in the coming years. It is important to note that the District will have to install arsenic treatment equipment in the coming years and this will increase the energy required to treat water. We recommend identifying funding (see below) for efficient equipment.

Recommendation #3: <u>Identify funding for efficiency and conservation upgrades.</u> There are two programs in California that can provide financing for energy efficiency, conservation, and renewable energy: the PACE program and the HERO program. Both programs provide low-interest loans, which are paid back using your cost savings with a property tax assessment. While both programs require the jurisdiction (Mono County) to approve a simple resolution adopting the program, the HERO program does not require the County to create a financing mechanism because it takes advantage of one already in place in California. Additionally, the HERO program provides the same loans for water conservation projects.

For more information on PACE: <u>http://pacenow.org</u> For more information on HERO: <u>https://www.heroprogram.com</u>

There is a new state funding source for projects that reduce both energy and water use at the same time. The California Department of Water Resources is currently finalizing a Water-Energy Grant Program, which will be available in early 2015. The draft guidelines are currently available and workshops are being held around the state. More information on this program can be found here: <u>http://www.water.ca.gov/waterenergygrant</u>

Recommendation #4: <u>Consider installing solar panels on buildings and/or underutilized lands.</u> Mammoth Community Water District, while larger, successfully installed a 1 MW solar array on a retention pond in 2011. The system provides about 80% of the power needed for their wastewater treatment plant, is operating at about 115% efficiency due to the cold weather and clear air, and will pay for itself in about 10 years. While MCWD was in the fortunate position to pay the upfront costs, there are many financing options available. Contact MCWD and visit <u>http://www.mcwd.dst.ca.us/solar-facility.html</u> for more information.

Nest Steps: Pursue the above recommendations. Keep the GHG inventory up-to-date. Use the instructions above and contained in the Inventory Excel file to fill in rest of 2014. In particular, track changes as October approaches. Feel free to contact the Sierra Nevada Alliance for any support over the coming year.

Attachments (2)

 <u>Full Inventory as Excel workbook</u>. There is much more detail and many more graphs in the file. It is organized both by use (water supply, wastewater, and administration) and by energy type (propane, electricity, and gas). There is also a summary tab, "Inventory."

Instructions for completing 2014: This file is set up to allow the district to complete the inventory for 2014 by filling in energy data for each month in the colored tabs. If full propane and gasoline data from previous years (2011 and 2012) become available, they can also be filled in using the colored tabs. All of the graphs and the non-colored tabs will update automatically.

2. <u>Methodology</u>. How this inventory was conducted.

Sources

Most background on the Bridgeport Public Utility District was taken, at times verbatim, from the 2010 "Municipal Service Review and Sphere of Influence Recommendation" prepared by the Mono County LAFCo. Accessed here:

http://www.monocounty.ca.gov/sites/default/files/fileattachments/local_agency_formation_comm ission_lafco/page/1058/bppud10.062010.pdf

ⁱⁱⁱ http://www.mercurynews.com/science/ci 25303957/california-drought-more-than-255-000-homes-and

ⁱ <u>http://www.aceee.org/sector/local-policy/toolkit/water</u>

ⁱⁱ http://www.mercurynews.com/science/ci 25303957/california-drought-more-than-255-000-homes-and