



Customer Debt and Lost Revenue: The Financial Impacts of COVID-19 on Small Community Water Systems

May 2021



Customer Debt and Lost Revenue:

The Financial Impacts of COVID-19 on Small Community Water Systems

May 2021



Pacific Institute
654 13th Street
Preservation Park
Oakland, California 94612
510.251.1600
info@pacinst.org
www.pacinst.org



Rural Community Assistance Partnership, Inc.
1725 I St NW #225
Washington, DC 20006
202.408.1273
info@rcap.org
www.rcap.org



Rural Community Assistance Corporation
3120 Freeboard Drive, Suite 201
West Sacramento, CA 95691
916.447.2854
www.rcac.org

Suggested citation: Bostic, Darcy, Walker Grimshaw, Michael Cohen, Laura Landes, Nathan Ohle, Ted Stiger, Glenn Barnes, and Ari Neumann. 2021. *Customer Debt and Lost Revenue: The Financial Impacts of COVID-19 on Small Community Water Systems*. Oakland, Calif.: Pacific Institute. https://pacinst.org/publication/COVID19_impacts_small_community_water_systems

ISBN: 978-1-940148-13-7

© 2021 Pacific Institute. All rights reserved.

Cover Photo Source: courtesy of RCAC. A tribal water operator and RCAC Circuit Rider flushing a hydrant.
Designer: Melissa Beckwith Designs

ABOUT THE PACIFIC INSTITUTE

The Pacific Institute envisions a world in which society, the economy, and the environment have the water they need to thrive now and in the future. In pursuit of this vision, the Institute creates and advances solutions to the world's most pressing water challenges, such as unsustainable water management and use; climate change; environmental degradation; food, fiber, and energy production for a growing population; and lack of access to freshwater and sanitation. Since 1987, the Pacific Institute has cut across traditional areas of study and actively collaborated with a diverse set of stakeholders, including policymakers, scientists, corporate leaders, international organizations such as the United Nations, advocacy groups, and local communities. This interdisciplinary and nonpartisan approach helps bring diverse interests together to forge effective real-world solutions. More information about the Pacific Institute can be found at www.pacinst.org.

ABOUT RCAP

The Rural Community Assistance Partnership, Inc., (RCAP) is a national nonprofit network comprised of a national office and six regional partners that provide direct technical assistance, training, and financial assistance and capacity building to small rural communities, many of which are economically disadvantaged, with a core focus on water and waste systems. Through its work, RCAP strives to improve environmental and community health; help rural communities comply with federal and state regulations and operate their infrastructure in a sustainable manner; and increase the capability of rural people to undertake other community development activities. RCAP also provides research, advocacy, storytelling, and partnership resources and expertise on rural issues across the country. More information about RCAP can be found at www.rcap.org

ABOUT RCAC

Rural Community Assistance Corporation (RCAC) is a nonprofit organization that provides training, technical and financial resources, and advocacy so rural communities can achieve their goals and visions. Since its founding in 1978, RCAC has provided services to local nonprofit organizations, small businesses, government agencies, and Tribal communities throughout the western United States. Our major program areas are affordable housing; water, wastewater, and solid waste infrastructure; community development; and lending. We also offer crosscutting leadership and economic development training programs. RCAC targets these programs and services to diverse rural populations including Native communities, Colonias in the US-Mexico border region, and low-income agricultural workers. More information about RCAC can be found at www.rcac.org.

AUTHORS

Pacific Institute

DARCY BOSTIC

Darcy Bostic joined the Pacific Institute in 2020 as a Research Associate. Her work focuses on the impacts of climate change on water resources and sustainable water management. Darcy holds bachelor's and master's degrees in Hydrologic Sciences from the University of California, Davis.

WALKER GRIMSHAW

Walker Grimshaw joined the Pacific Institute in 2020 as a Research Associate. His main research interests are environmental justice and equitable and affordable access to drinking water and sanitation. He holds a bachelor's degree in Bioenvironmental Engineering from Cornell University and a master's in Environmental Management from Duke University.

MICHAEL COHEN

Michael Cohen is a Senior Researcher at the Pacific Institute. He has written articles and reports on municipal and agricultural water use in the Colorado River Basin, the hydrology of the Colorado River delta, and on the preservation and costs of inaction at California's Salton Sea, among others.

RCAP

LAURA LANDES

Laura Landes is the Research Manager at RCAP. She oversees RCAP's national research efforts on the topics of water and wastewater utility regionalization, economic development, water access and affordability, small water system compliance, and others.

NATHAN OHLE

Nathan Ohle is the Chief Executive Officer of RCAP. Ohle has deep experience in rural water issues, community engagement and nonprofit leadership, and came to RCAP from the U.S. Economic Development Administration, where he served as the Senior Advisor to the Assistant Secretary for Economic Development.

TED STIGER

Ted Stiger is the Senior Director of Government Affairs & Policy at RCAP. Stiger's experience includes environmental, economic development, and rural policy advocacy, including drafting legislation that has been secured in multiple Farm Bills, infrastructure and appropriations measures, and the Water Resources Development Act.

GLENN BARNES

Glenn Barnes is the Financial and Managerial Capacity Building Specialist at RCAP. Barnes's work focuses on the financial and managerial needs of small town and tribal water systems as well as the needs of non-community water systems across the country. Barnes is also director of Water Finance Assistance.

RCAC

ARI NEUMANN

Ari Neumann is the Director of Community and Environmental Services at RCAC. He oversees a team of more than 80 professionals that provide technical assistance and training to rural and Tribal communities on water, wastewater, economic development, and solid waste management in 13 Western states. He holds a bachelor's degree in American Studies from Stanford University and a law degree from the University of Washington.

ACKNOWLEDGEMENTS

The Water Foundation generously provided funding for this study. We greatly appreciate the time, suggestions, and feedback from our Advisory Group: Patricia Avila-Garcia, Juliet Christian-Smith, Michael Claiborne, Jennifer Clary, Cristal Gonzalez, Adam Krantz, Alesandra Najera, Jonathan Nelson, Alan Roberson, and Phoebe Seaton.

We thank the following people for providing survey responses, suggestions, information, and for participating in interviews for the case studies: Nancy George, Max Gomberg, Dawn Ison, Curtis Jorritsma, Adam Krantz, Nicole Mangin, and Michael Prado, Sr.

We thank Heather Cooley, Joe Ferrell, Brendan McLaughlin, Jonathan Nelson, Rebecca Olson, and Greg Pierce for reviewing drafts of this report; remaining errors are ours. The views expressed in this report are those of the authors and may not reflect the opinions of those who provided input and feedback.

Contents

Acronyms and Glossary	1
Executive Summary	2
Introduction	4
Background	4
Methods & Data Sources	8
Results	10
Conclusion	17
Policy Recommendations	18
References	21
Case Studies	23
Surveys	23
Appendix	24

FIGURES

Figure 1. Population Served by Small Community Water Systems in Each U.S. County As of 2020	5
Figure 2. Net Number of Small Community Water System Formations From 1990 to 2019	6
Figure 3. Distribution of Revenue Change Reported by Small Community Water Systems	11
Figure 4. Predicted Time Small Community Water Systems Could Continue to Cover Expenses With Revenues	12

TABLES

Table 1. Number of Community Water Systems and Total Population Served, by Size	5
Table 2. Extrapolated National Small Community Water System Revenue Losses (2020)	11
Table 3. Case Study Water Systems	15
Table A-1. State and National Surveys on the Financial and Operational Impacts of COVID-19 on Water Systems	24
Table A-2. Contacts and Dates of Interviews for Case Studies	25

Figures and tables are free to use with proper attribution.

ACRONYMS AND GLOSSARY

American Water Works Association (**AWWA**)

An international nonprofit, scientific, and educational association founded to improve water quality and supply.

Community Water System (**CWS**)

A public water system that serves the same people year-round. Most residences including homes, apartments, and condominiums in cities, small towns, and mobile home parks are served by Community Water Systems.

Drinking Water State Revolving Fund (**DWSRF**)

A federal-state partnership to help ensure safe drinking water. The federal government provides capitalizing grants to states, which then offer grants and low-interest loans to water systems to ensure compliance with the Safe Drinking Water Act.

U.S. Environmental Protection Agency (**EPA**)

A federal agency that regulates the protection of the environment, including drinking water resources.

Median Household Income (**MHI**)

The income amount that divides a population into two equal groups, half having an income above that amount, and half having an income below that amount.

Public Water System (**PWS**)

A PWS serves at least 15 connections or 25 people for more than 60 days a year.

Small Community Water System (**SCWS**)

A community water system that serves 10,000 people or fewer.

Safe Drinking Water Act (**SDWA**)

A federal regulation that sets requirements for drinking water quality standards and source water protection.

Safe Drinking Water Information System (**SDWIS**)

This is the system run by the EPA for monitoring and cataloguing public water system data related to the Safe Drinking Water Act.

California State Water Resources Control Board (**SWRCB**)

Part of the California Environmental Protection Agency, the SWRCB regulates water quality and drinking water resources in California.

EXECUTIVE SUMMARY

This report provides information on revenue losses experienced by small community water systems (SCWS) in the United States and debt accumulated by their customers during the COVID-19 pandemic. More than 45,000 SCWS, defined as systems serving fewer than 10,000 people, exist across the United States. The pandemic has exacerbated pre-existing challenges for these water systems and for poorer communities faced with rapidly rising water bills, including financial and cyber insecurity, and the rising costs of treating new contaminants in their water and wastewater. The report includes case studies illustrating the breadth and depth of challenges SCWS face due to the COVID-19 pandemic.

Analysis of national and California surveys shows the unequal distribution of the effects of the pandemic on SCWS. While most systems have experienced small changes in expenses and revenues, some have lost more than 30% of their revenue. Altogether, SCWS revenue loss totaled between \$530 million and \$1.5 billion nationally in 2020, with between a quarter and a half of systems losing some amount of revenue. Although most customers are still able to pay their water bills on time, almost 10% of California SCWS customers owe an average of \$370 to their utility — accumulating as much as \$38 million of water-related debt.

SCWS revenue losses led to budget shortfalls and delayed maintenance and capital projects. Between

10% and 20% of SCWS that responded to surveys reported the ability to meet operating expenses for only a short period without financial assistance — less than six months. Survey results showed that an even greater number of SCWS have reported delaying maintenance and capital projects, and increasing rates or operating at a deficit to continue to provide water services. We did not find reports of SCWS failures or bankruptcies. While these mitigating actions have maintained drinking water delivery to millions of customers, they are further deferring maintenance to already aging infrastructure and could compromise the ability of water systems to supply safe water in the short- and long-term.

Survey data indicates an increase in SCWS customer debt during the pandemic. Extrapolating from the California survey suggests that the total national water household debt for SCWS customers may have been on the order of \$800 million as of November 2020. While state moratoria on disconnecting water service during the pandemic have maintained access for millions of customers, household debt continues to grow, threatening widescale disconnections once the moratoria expire. The financial effects of the COVID-19 pandemic disproportionately burden communities of color and communities with high rates of poverty.

In late December 2020, Congress appropriated \$638 million in assistance for low-income water and wastewater customers. Of the three COVID-19 relief bills that have been enacted, this was the

first funding passed for water affordability and access. The March 2021 pandemic relief legislation includes an additional \$500 million for SCWS and their customers. Enacting the Emergency Assistance for Rural Water Systems Act could provide additional SCWS assistance through the United States Department of Agriculture's Rural Utilities Service as well as direct funding and financing for water infrastructure projects. The federal government should also establish a federal customer assistance program, similar to the federal energy assistance program.

Water is a necessary utility, especially during a pandemic. The data provided through various surveys show that there is a significant need to ensure that SCWS, and their customers, can continue to operate and live healthy and safe lives. Without federal assistance, many SCWS, and their customers, may be at risk. To address the needs identified in the surveys, we recommend targeting federal relief to both utilities and customers.

Utility-focused aid should include direct funding and financing for infrastructure projects that ensure each system has the necessary resources to maintain safe and affordable water, wastewater, and waste disposal service. This should include Drinking Water State Revolving Funds (including grants and zero interest loans to local governments), sewer overflow control grants, water workforce development grants, and grants for lead treatment, remediation, and replacement.

Customer-focused aid should increase funding assistance for low-income water and wastewater



Source: RCAP

customers, recognizing that customer aid also aids utilities. Specific attention should be given to SCWS and their customers to ensure they are included in future federal aid. There is broad support for a federal customer assistance program and additional funding for technical assistance and capital improvements for SCWS. Together, these programs can ensure that utilities continue to operate and their customers maintain access to water.

INTRODUCTION

Almost 50,000 community water systems provide water to some 286 million people in the United States. More than 45,000 of these systems are small, serving fewer than 10,000 people each. These small community water systems (SCWS) serve 53 million people — almost 18% of the U.S. population — across the country in many different settings, including rural and urban, on Tribal reservations, in the midst of larger utilities in huge metropolises, and in growing communities.

SCWS often lack financial reserves and, despite their critical role in providing a vital resource to their communities, are frequently overlooked in state and federal stimulus and aid packages. The continuing COVID-19 pandemic has affected SCWS disproportionately, jeopardizing the financial health of the systems themselves and the health and welfare of the people they serve. The pandemic has exacerbated pre-existing challenges for the water systems and poorer communities faced with rapidly rising water bills, financial insecurity, and the rising costs of treating new contaminants in their water and wastewater. As water system operation becomes increasingly automated, cybersecurity will be paramount, again leaving small, under-resourced systems the most vulnerable (Carollo and Evans 2021).

As of mid-March 2021, no peer-reviewed articles had been published on the financial impacts of COVID-19 on SCWS, but a growing number of national and regional surveys indicate the tenuous financial situation of small systems.

Many media articles focus on large water systems; far fewer focus on SCWS. Those few articles indicate the bleak conditions facing SCWS and the challenges that the pandemic will cause for

long-term water-rate affordability. For example, in Tyrrell County, North Carolina, the county water system requested an exemption from the state's moratorium on shutoffs to avoid defaulting on a bond repayment (Griffin 2020).

This report describes the challenges SCWS faced prior to the pandemic and the extra burden the pandemic and public health responses to it have imposed on SCWS and their customers. We provide a brief background on SCWS, the methods used in this study, and describe the surveys we analyzed and the four utilities we interviewed, followed by the findings we gleaned from these surveys and interviews. These results inform a series of policy recommendations and general conclusions.

PROBLEM STATEMENT

The continuing COVID-19 pandemic has impacted SCWS both directly and indirectly, reducing revenues and financial reserves, affecting staff and customers, and creating operational challenges. The financial impacts of COVID-19 on SCWS threatens water security for some 53 million people in the United States, and could contribute to the rising debt of many of these utility customers. This is a story often overlooked among the host of other losses and damages the pandemic has caused.

OBJECTIVE

The objective for this report is to summarize and synthesize information about revenue losses experienced by SCWS and increasing water debt among their customers due to the COVID-19 crisis.

BACKGROUND

Assessing the impacts of the pandemic on SCWS and their customers requires an understanding of baseline conditions. Community water systems (CWS), a subcategory of public water systems,

provide year-round water service to a consistent customer base.¹ Table 1 shows that, while medium and large CWS provide water to most of the U.S. population, the vast majority of CWS serve fewer than 10,000 people. Nationally, these SCWS serve approximately 53 million people across almost every U.S. county (Figure 1).

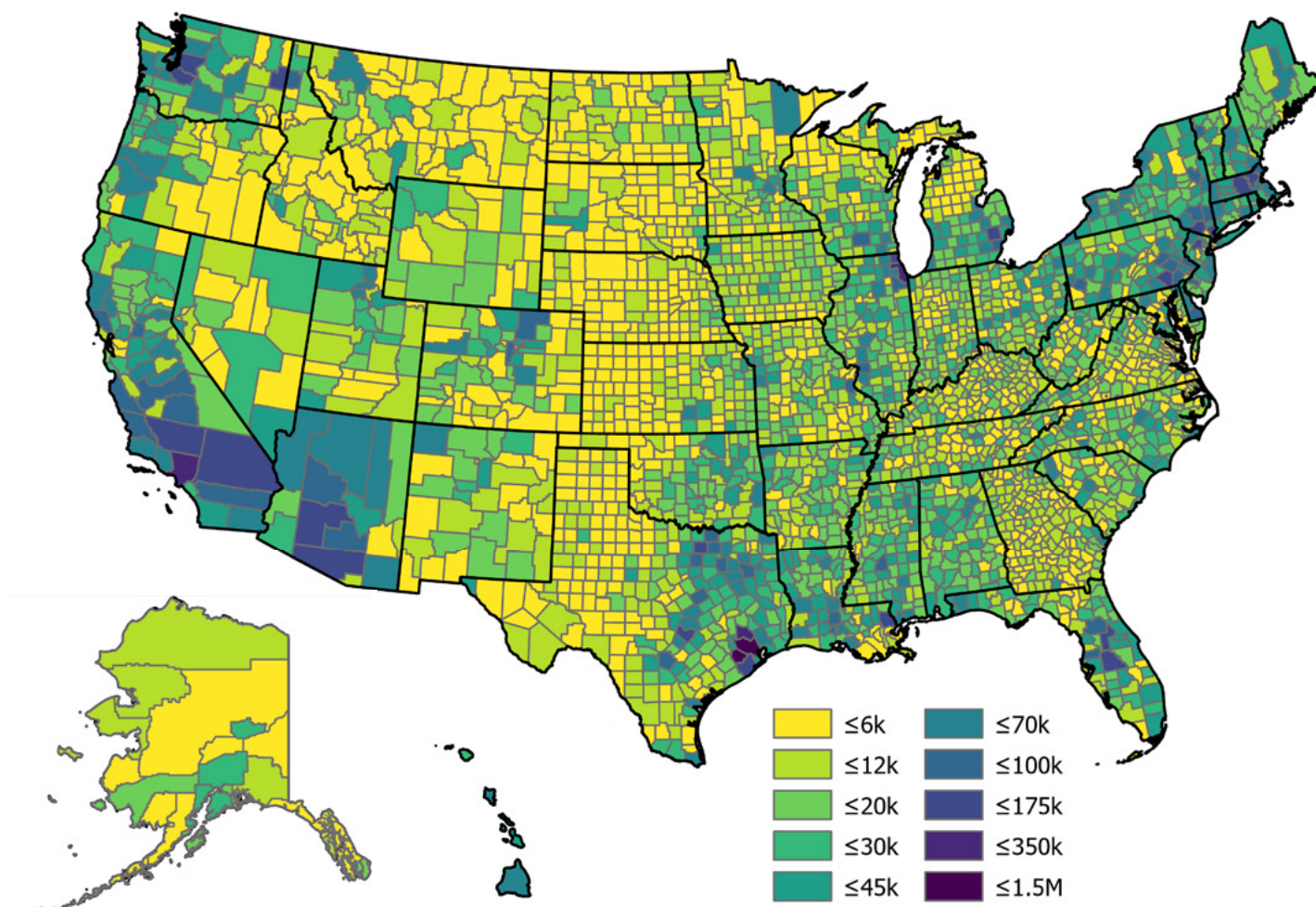
¹ Most public water systems are classified as “non-community” water systems; examples include schools, rest areas, and campgrounds. Non-community water systems are not included in this study.

Table 1. Number of Community Water Systems and Total Population Served, by Size

CWS Size	Active Number in 2020	Approximate Population Served	SCWS
≤500	26,910	4,540,000	
501-3,300	13,308	19,100,000	
3,301-10,000	5,011	29,400,000	
10,001-100,000	3,945	114,000,000	
>100,000	440	145,000,000	

Source: U.S. EPA 2021

Figure 1. Population Served by Small Community Water Systems in Each U.S. County As of 2020

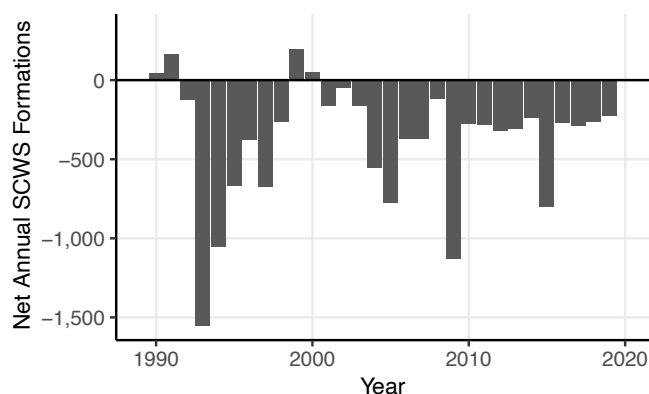


Source: U.S. EPA 2021

FORMATION AND DEACTIVATION

One element providing context for the impact of the pandemic on SCWS is the change in the number of such systems prior to the pandemic. Since 1990, 60% more SCWS have deactivated than formed. Deactivations of small water systems often indicate the consolidation of the system with another system, though consolidations are not tracked on a national level. For example, see the [Sultana, California case study](#). Unfortunately, we were unable to find any estimates of how many SCWS go bankrupt or face severe financial shocks requiring outside intervention each year. Figure 2 shows the number of new systems minus the number of system deactivations. Deactivations often but do not always indicate water system consolidation.

Figure 2. Net Number of Small Community Water System Formations From 1990 to 2019



Source: U.S. EPA 2021

FINANCING

Determining the extent of the financial impacts of the pandemic on SCWS and their customers requires an understanding of pre-pandemic financing. Unfortunately, despite the large number and importance of SCWS, very little has been published about their financial health. The University of North Carolina School of Government's Environmental Finance Center produces "Finance Dashboards" (Environmental Finance Center 2020), which provide detailed rates

and financial information for many systems across 19 states. The data reflect the significant variability in rates and financial metrics due to differences in system size, system age, the quality and reliability of its water source(s), the density of its distribution network, and the variety of customer classes the utility serves. For example, a system treating and delivering high-quality water diverted from a stream to a mix of commercial and institutional customers and 9,000 people in multifamily housing will have lower operating costs than a system extracting poor quality groundwater from a deep well and distributing it to a similar number of people dispersed over a large area, with old infrastructure requiring regular maintenance.

Grant and loan funding from state and federal governments has declined steadily since the 1970s, so ratepayers now provide almost all drinking water system revenues. Water rate structures vary across the country, with some trends in rate structures based on regional or state preferences and water availability. Non-governmental systems, such as homeowner associations and mobile home parks, may be more likely to charge a flat fee for unlimited water use, while small governmental water systems may be more likely to have uniform block rates (with the same price per gallon at all levels of usage) than larger systems. Most systems in Minnesota have increasing block rates regardless of utility size, while most in Wisconsin have decreasing block rates regardless of size (though the first block is usually at a volume exceeding that used by most households).

Small water systems often do not have the advantage of economies of scale to pay for expensive infrastructure construction and maintenance. If a drinking water system is charging rates that reflect the full cost of running the system today and into the future (including a sufficient investment in infrastructure), the rates for smaller

communities will almost always be higher than those for larger communities. But many smaller utilities only charge enough to cover day-to-day operations and not necessarily for a proper fund balance or for capital replacement to ensure that the water rates being charged to customers are affordable. The regulatory environment also affects rates: those under the jurisdiction of a public utility commission are more likely to capture the full cost of service in their rates than governmental or nonprofit systems that set their own rates.

Larger water systems tend to have an operating ratio of utility revenues to expenses of 1.2, to provide financial reserves for large capital expenditures and debt service. For smaller systems, maintaining sufficient revenues to meet expenses beyond day-to-day operations can create affordability challenges for their customer base, especially in lower-income areas.

Medium and large CWS frequently issue bonds to fund capital improvement projects, using revenue collected from their ratepayers to pay the bonds over time. Just as frequently, water systems will issue bonds to refinance existing debt and capitalize on advantageous interest rates. Less information is available about SCWS debt-financing, but systems both small and large need capital investment. The 2015 U.S. Environmental Protection Agency (EPA) Drinking Water Infrastructure Needs Survey and Assessment estimated that water systems nationally needed \$470 billion in infrastructure upgrades over 20 years. Systems serving fewer than 3,300 people make up \$75 billion of this need (Barles 2018).

Many state and federal programs provide technical training and financial support to water systems. The federal Safe Drinking Water Act (SDWA) authorizes states to allocate as much as 31% “of their annual capitalization grant under the Drinking Water State Revolving Fund to support water

system capacity, operator certification, source water protection, training and technical assistance to public water systems.” (US EPA 2017). Technical assistance funding for SCWS under this program is capped at 2% of the annual capitalization grant allotted to the state. The EPA provides additional training and technical assistance grants to help communities comply with SDWA regulations, including operator certification. USDA has additional training and technical assistance grants, and many states use their set-aside funds for training and technical assistance activities. Even with all of these programs, it does not come close to the need for technical assistance to SCWS across the country.

HOUSEHOLD WATER DEBT

The economic fallout caused by the COVID-19 pandemic, paired with rapidly rising water rates, has made paying for water more challenging for millions of Americans. Prior to the pandemic, water bills were becoming increasingly unaffordable as wages grew at slower rates than the cost of water. From 2010 to 2018, a study of 12 large utilities showed that water bills rose 27 – 154%, hurting low-income families’ abilities to pay for water most acutely (Lakhani 2020). According to the EPA, water services, including both drinking water and wastewater, are affordable when their total cost does not exceed 2.5% of median household income. Based on this threshold, about 25% of U.S. households are burdened with unaffordable water services (American Water Works Association 2014).

Public data on historical household water debt are limited, in large part because water systems are not required to collect or report these data to regulatory agencies. A 2020 Circle of Blue report on only a dozen large utilities found that median residential water debt before the pandemic ranged from \$79 per account in Denver to \$660 per account

in Philadelphia (Walton 2020). Information on the demographics of households with water debt is even more limited. Some larger water systems offer customer assistance programs to address and help prevent the accumulation of water debt by low-income residents;² however, many SCWS lack the revenue base to provide such assistance.

Increased unemployment during the pandemic, paired with high water costs, catalyzed surges in the number of people who cannot afford water. A few state and federal surveys have been conducted, to better understand who is falling behind on water bills during the pandemic (Appendix Table A-1). Analysis by the California State Water Resources Control Board (SWRCB) shows that as of November 2020, zip codes in California with higher percentages of Hispanic and Black households have a higher average level of water debt and higher percentages of households with some level of debt. This report summarizes impacts of the pandemic on SCWS and their customers, pulling from the information included in various surveys.

METHODS & DATA SOURCES

The Pacific Institute, RCAP, and RCAC collaborated on this study, building from a national survey RCAP conducted last year. For this study, we did not conduct original surveys. Rather, we reviewed and analyzed the reported results and, in several cases, anonymized data from existing state and national surveys (see Appendix Table A-1). We also conducted semi-structured interviews with representatives of four SCWS and reviewed media stories to provide

additional background and describe the impacts to SCWS customers. We convened an Advisory Group that included representatives of the Association of State Drinking Water Administrators, Clean Water Action, the Community Water Center, the Leadership Counsel for Justice and Accountability, the National Association of Clean Water Agencies, and the Water Foundation. This group provided suggestions and recommendations on methods, data sources, and policy recommendations, and reviewed early drafts of this report.

DATA SOURCES

The EPA, SWRCB, the Illinois section of American Water Works Association, and RCAP all gave us access to anonymized raw data for their surveys. These anonymized raw data are available for download and further analysis in a spreadsheet at www.pacinst.org/SCWS. Additional tabs in the spreadsheet present basic data summaries as pivot tables, such as revenue loss by system size category. Each survey requested different data from its respondents, so all data and summaries are presented separately for each survey.

The SWRCB surveyed California public water systems on the financial impacts of COVID-19 from early June to early August 2020 and surveyed a separate set of systems in November 2020. The first survey was untargeted and voluntary. Only 7.5% of the state's CWS (213 systems) responded, representing only 5% of SCWS (123 systems). The November 2020 SWRCB survey was unique among the financial impacts surveys in SWRCB's commitment to survey a statistically representative sample of CWS in California for all water system sizes. The November survey received responses from 20% of the state's CWS (579 systems) and 11% of SCWS (276 systems) after assisting small systems in responding to the survey.

² For example, the East Bay Municipal Utility District provides 50% off service charges and 50% off water use charges for qualifying low-income residents (East Bay Municipal Utility District n.d.).

In May 2020, RCAP conducted a similar survey of the public water and wastewater systems they work with and received responses from 991 small systems (estimated based on the number of connections) that provide water (includes systems that provide both water and wastewater services, but not respondents that indicated they provide only wastewater services) in 49 states and Puerto Rico.

The EPA performed the most recent national survey, covering October to December 2020, which received responses from 743 SCWS. Unlike other surveys, the EPA survey asked water systems to compare their budgeted revenues and expenses to their actual revenues and expenses for 2020. The EPA approach should more accurately reflect the impacts of the pandemic while minimizing the impacts of interannual variation, but the revenue shortfalls measured by the EPA survey cannot be perfectly compared to the revenue losses measured by other surveys.

HOUSEHOLD DEBT

SCWS customers' household debt has increased during the pandemic, but information on customer debt is limited. The California Public Utilities Commission (CPUC) survey and the November SWRCB survey requested household debt data; the other surveys listed in the Appendix did not. The CPUC requested customer debt data for the largest investor-owned water utilities in the state, while the SWRCB requested customer debt data for all survey respondents, including both the number of accounts in debt and the overall amount of debt by zip code. Small systems were not asked to report the accumulation of debt over time, so the rate of debt accumulation and how much debt existed before the beginning of the pandemic is unknown.

PROJECTIONS

Revenue losses and customer data on debt were projected to the state and national levels and normalized to an annual time scale to compare across surveys. To project survey revenue loss responses to the state and national levels, SCWS were categorized by size, and the mean revenue loss in each size category was divided by the proportion of state or national systems that responded to the survey. Normalization to an annual time scale simply divided by the number of months for which survey data were collected and multiplied by 12 months.

DATA LIMITATIONS

This report uses the results of all relevant surveys we found since the beginning of the pandemic, but each survey was limited in scope, duration, and statistical representation of all SCWS. Most surveys were administered in the Spring of 2020 and reflect the earliest impacts of the pandemic and the strictest public health lockdown period. The inter-month variation of revenues and expenses further limits the accuracy of extrapolations of the snapshot data provided by most surveys. Though the November SWRCB and EPA surveys provide more recent and longitudinal data, multiple months have already passed since then and conditions continue to change for SCWS.

All the surveys analyzed in this report were voluntary, causing selection bias in favor of those with the resources to respond. Though all surveys were voluntary, small systems received assistance to increase response rates and accuracy of results in the RCAP survey and the November SWRCB survey. The November SWRCB survey and the EPA survey were also the only surveys to select

participants based on statistically representative sample draws for California and the United States, respectively. Though the EPA dedicated fewer resources to enable SCWS to provide complete and accurate results to the lengthy survey, the questions with high response rates should be representative of SCWS more broadly.

CASE STUDIES

This project includes five case studies highlighting the concerns and challenges of individual SCWS and their customers. Members of the project Advisory Group identified and introduced us to interested utilities. We then reached out to contacts in seven states and spoke with representatives from nine water systems in Alaska (1), Arizona (1), California (2), Delaware (1), New Mexico (2), North Carolina (1), and Vermont (1). Out of these systems, four agreed to be interviewed. Interviews were semi-structured, with an initial set of interview questions from which interviewees could stray, and lasted about 30 minutes each. Dates of interviews and contact information can be found in Appendix Table A-2. One additional case study summarizes the perspectives of customers in debt, drawn from existing media stories.

RESULTS

The review of existing survey data indicates that the ongoing pandemic has exacerbated financial challenges for many SCWS and many of their customers. This could further delay capital projects, test the resilience of some systems, and add to existing household debt as rates are raised to compensate.

The November SWRCB survey data demonstrate that (1) large changes have occurred to the operations and finances of SCWS in California since the onset of the pandemic, and (2) monthly revenues and expenses are erratic. The EPA survey data indicate that while the majority of SCWS experienced changes to anticipated revenues and expenses of less than 10%, 7% experienced revenue declines of greater than 40%.

REVENUE LOSS

Revenue loss peaked in the early months of the pandemic and has decreased since then, but a minority of SCWS are still losing substantial revenue due to unpaid bills and reduced water use. The percentage of SCWS in California reporting a revenue loss declined from 41% to only 24% between the summer and November surveys, but these systems are still losing 7.5% of their revenue at a rate of \$23.5 million annually. Figure 3 shows the unequal distribution of these revenue losses. Though the same systems did not respond to both surveys, this provides some indication that overall financial conditions improved between the two surveys. Similarly, 5 – 6% of respondents in the summer SWRCB and RCAP surveys reported revenue losses exceeding 30%, but only two SCWS (<1% of respondents) reported such dramatic revenue losses in the November SWRCB survey.

Data suggest that conditions across the United States are worse than in California. Though the EPA survey asked for changes between budgeted and actual revenue, as opposed to revenue change from 2019 to 2020, the national EPA survey results show larger revenue losses than the November California survey (Figure 3). Of the 743 SCWS surveyed by EPA, only 23% (172 SCWS) reported both budgeted and actual revenue, but almost half of these systems (86 SCWS) reported losses.

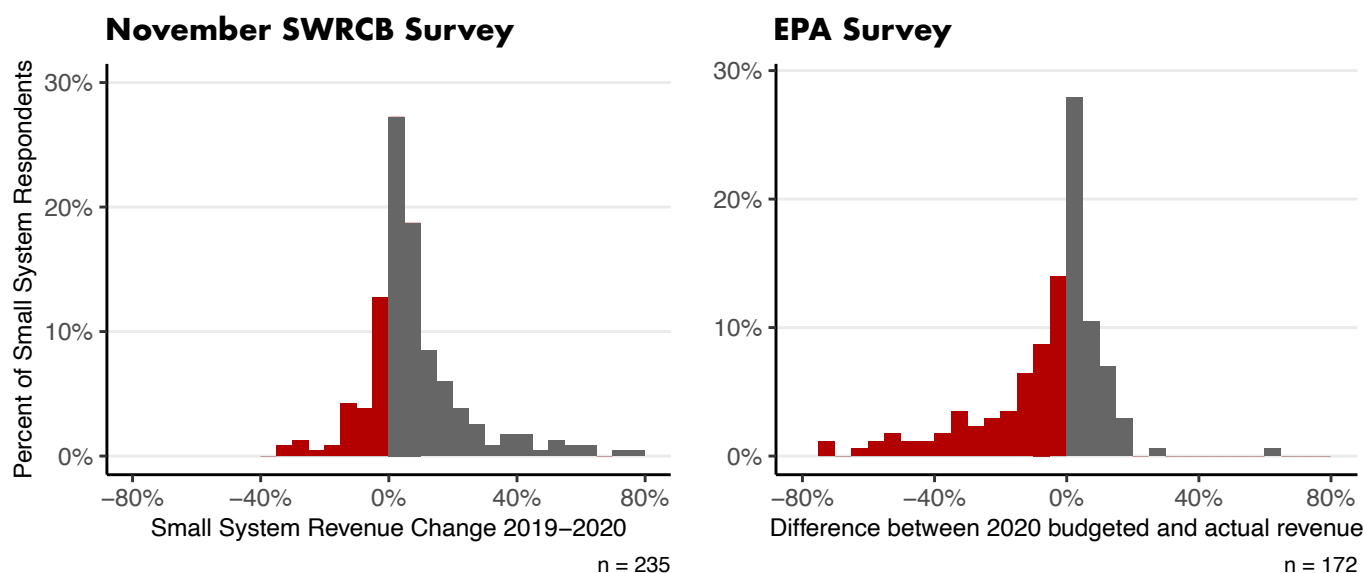
Figure 3. Distribution of Revenue Change Reported by Small Community Water Systems

Table 2 shows the annual revenue loss among all SCWS nationally if each of the surveys were statistically representative. The magnitude of the differences reflects how the pandemic's financial impacts have changed over time, the range of financial impacts from the pandemic, and the challenges associated with extrapolating from limited survey results to the entire United States.

Table 2. Extrapolated National Small Community Water System Revenue Losses (2020)

Surveys Conducted in 2020	Summer SWRCB (California)	November SWRCB (California)	May RCAP (National)	November-December (National, EPA)
Revenue loss extrapolated from these survey results	\$1 Billion	\$0.5 Billion	\$3.6 Billion	\$1.5 Billion

The survey data alone do not provide a strong indication of which SCWS have been most severely affected by the pandemic. Only the RCAP survey results showed a correlation between revenue loss and poverty prevalence; **an increase in poverty was correlated with greater revenue loss**. This worrisome correlation corroborates the disproportionate impact of the pandemic on low-income communities and water systems that already had limited financial resources before the pandemic began. However, the other surveys did not result in the same poverty-revenue loss relationship. Neither the SWRCB survey nor the EPA survey showed revenue loss had a statistically significant relationship with system size, geographic location, poverty prevalence, whether

the system serves a Tribe, or the commercial, industrial, and/or residential makeup of the customer base. The lack of correlation among these water system characteristics and revenue loss indicates the complex nature of water system finance and the significance of inequities before the pandemic began.

Monthly expenses and revenues from April to October 2020 show erratic changes and no discernable trend compared to 2019 data. These erratic data underscore the importance of cumulative data like that collected in the November SWRCB survey, and may minimize the ability to make meaningful conclusions from the

snapshot data provided by many other surveys. While the overall picture is one of improvement, some water systems are still in need of assistance to meet their expenses and continue to provide safe drinking water.

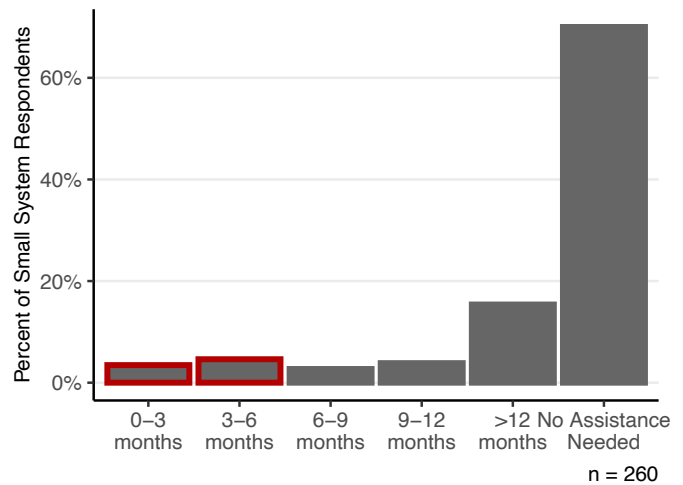
REQUESTED ASSISTANCE

In late October, 8% of SCWS in California predicted they could meet expenses with their current revenue for less than six months (Figure 4). The spring and summer survey respondents predicted even more tenuous circumstances. Eight small systems (7% of respondents) from the summer SWRCB survey reported monthly revenue losses greater than 30% of cash reserves, and 30% of RCAP's national survey respondents reported the ability to cover all system expenses for only six months or less under the financial conditions at the time.

However, there has not yet been a widespread failure or bankruptcy of SCWS. This does not mean, though, that SCWS are not in dire financial situations. SCWS have mentioned delaying maintenance or capital projects, or increasing rates, due to the pandemic, further exacerbating already difficult financial situations and infrastructure challenges. Other SCWS are operating at a deficit to deal with decreased revenue and increased expenses. Capital projects and water rate increase delays could compromise the ability of SCWS to supply safe water in the mid- and long-term. Some SCWS may also use cash reserves to address revenue losses, but financially struggling SCWS are less likely to have such reserves, compounding the negative impact of COVID-19.

There is already a deficit in spending on capital projects to ensure the country's water infrastructure is well maintained. Aiding small water systems to address impacts of the COVID-19 pandemic is necessary to keep the deficit in capital projects from continuing to grow.

Figure 4. Predicted Time Small Community Water Systems Could Continue to Cover Expenses With Revenues



Source: November SWRCB survey data

The amount of time some SCWS estimated they could operate without assistance did not correlate with the other metrics reported in the November SWRCB survey, including revenue change, expense change, or customer debt. Surprisingly, most SCWS reporting a need for assistance in less than six months also reported increases in revenue in 2020 compared to 2019. This indicates that a loss of revenue may have less of an impact on a water system's health than the financial circumstances of the system before the pandemic began.

HOUSEHOLD DEBT

Nine percent of SCWS customers, or 73,000 accounts, are in debt to their water provider in California. The average debt is \$370 per account, less than the \$500 average for medium and large systems. Small water system customers in California had accumulated \$27 million in debt by the end of October 2020, but we estimate that household debt may have grown to as much as \$38 million by the end of January 2021. It is unknown how much debt existed before the pandemic, but that is likely a determinant of the financial condition of the water system, similar to the

change in revenue. Some utilities combine charges for energy, rent, and wastewater, so the \$38 million estimate reflects more than unpaid drinking water bills. Based on responses from larger systems, the California SWRCB estimates that 60 – 70% of the total household debt is specific to drinking water.

Among the 50 small systems that reported losses in the summer SWRCB survey, 41 systems (82%) reported at least part of the reason as non-payment of bills, and 14 (28%) reported reduced usage as part of the reason for revenue loss. Beyond revenue losses, small water systems have commonly seen other negative impacts from COVID-19, including personnel shortages and the need for mutual aid and operational support. Supply chain issues are also prevalent for chemicals, critical equipment, and personal protective equipment (PPE), all vital to the supply of safe drinking water during the pandemic.

GENERAL FINDINGS FROM OTHER SURVEYS

The American Water Works Association, the Environmental Finance Center at the University of North Carolina, National Rural Water Association (NRWA), the Raftelis-Nicholas Institute, and the Washington State Department of Health have also conducted surveys and written corresponding reports or short white papers on the impacts of COVID-19 on water systems (see Appendix Table A-1 for a tabular summary of all surveys). Only the surveys from RCAP and NRWA targeted small water systems, though the Environmental Finance Center reports some data for only small water systems. The surveys, taken together, all indicate the broad range of financial impacts on water systems, varying by utility size, climate and seasonal use patterns, state shutdown and reopening policies, rate structure, and especially the makeup of the customer base.

The [American Water Works Association](#) surveyed 421 systems in June 2020, 187 of which were small systems that serve fewer than 10,000 people. More than half of the survey respondents reported revenue generation/cash flow issues or anticipated issues within the month after the survey. Small systems serving fewer than 10,000 people reported the highest likelihood (27%) of revenue loss that would impact the existing level of service. Though many of the concerns of utilities had decreased since a similar survey in April, concerns over revenue and cash flow had increased (American Water Works Association 2020).

The [Illinois Section of the American Water Works Association](#) surveyed 141 systems in April and 73 systems in June 2020 on operational and financial impacts of the COVID-19 pandemic. In both surveys, respondents cited staff health as their primary concern, and fewer than half of respondents cited budget or revenue concerns. As the length of the pandemic became clearer from April to June, the proportion of systems reporting negative revenue impacts from disconnection moratoria and shutdowns rose from 19% to 39% (28 systems). In June, 39% of respondents (28 systems) still reported it was too early to tell if the pandemic would have negative revenue impacts (American Water Works Association Illinois Section 2020).

The [Environmental Finance Center](#) at UNC surveyed 95 water systems from April 29 – May 5, 2020 and analyzed North Carolina Public Utility data through July 2020 to supplement its financial analysis. These studies found that average arrears were only 2.5% of operating revenue, but the hardships of the pandemic were unequally distributed, with some utilities reporting up to 43% revenue decreases and 20% of their customers eligible to be disconnected due to non-payment.

Negative impacts of the pandemic were generally worse among small water systems serving fewer than 10,000 people, with half of small systems reporting they could pay for operating and capital expenditures for fewer than six months under the conditions at the time. Roughly half of the systems reported changes in capital projects due to the pandemic's financial impact, with the most common change reported as delaying the start of a project that was planned to begin soon (Eskaf 2020).

The [National Rural Water Association](#) surveyed 4,915 water and wastewater systems nationally in April 2020; 95% of respondents provided either water or water and wastewater services. NRWA estimated that drinking water systems would lose \$817 million in revenue by mid-July under the circumstances of April. Forty-nine percent of systems reported revenue losses, averaging a 22% decrease in revenue, and many more systems expected revenue losses that had not yet occurred. Thirty-one percent of respondents reported water usage decreases, with an average decrease of 25% (National Rural Water Association 2020).

The [Washington State Department of Health](#) surveyed 314 systems May-July 2020. Approximately 216 of the surveyed systems serve fewer than 10,000 people, but most of the results are not broken down by system size. Thirty-six percent of respondents (114 utilities) reported revenue losses totaling \$20 million. If representative of the state, the Department of Health estimates revenue losses of \$177 million across Washington at the time of the survey. Only 4% of respondents (14 systems) reported high or extreme financial impact. However, 11% of respondents (35 systems) reported being unable to perform regular maintenance, and 30% (94 systems) reported they would delay planned or new capital projects in response to the pandemic (Washington State Department of Health 2020).

The [Raftelis](#) report analyzes billed revenue and consumption for ten utilities through August 2020. The report uses the highest resolution data of all surveys for water use and billed revenue, but the billed revenue does not account for unpaid bills. Respondents report that residential use has mostly increased during the pandemic while non-residential use has mostly decreased. These reported changes are mostly not far outside the range of monthly water use over the past three years (Eastman, et al. 2020).

[Raftelis](#) also surveyed 69 medium and large water systems nationally in August and September 2020. Respondents reported a 28% increase in unpaid bills more than 30 days late, with the greatest delinquency increases in communities with low median household incomes. Like other surveys, the Raftelis survey showed a broad range of revenue impacts, but most revenues were below water system budgets. Roughly a third of surveyed systems were already concerned about affordability challenges before the pandemic, and those concerns have grown with the impacts of the COVID-19 crisis. Systems have a broad range of customer assistance programs and mentioned delaying rate increases and capital projects to protect affordability in the short-term (Raftelis 2020).

CASE STUDIES

Five case studies are included with this report, highlighting the challenges small systems and customers face across the country (Table 3). Although the systems interviewed are scattered throughout the country, the challenges they face are similar. Small water systems are facing revenue shortfalls but remain resilient and in operation. Customers are faring worse, struggling to pay their water bills amid the economic recession and pandemic.

Table 3. Case Study Water Systems

Name of Water System	Location	Population Served	Number of Service Connections
Village of Chama	Chama, NM	1,573	550
Hilmar County Water District	Hilmar, CA	5,200	1,643
Village of Manokotak / Manokotak Heights Water System	Manokotak, AK	497	95
Sultana Community Services District	Sultana, CA	775	250

Some water systems across the country face fixed or increasing expenses but rapidly decreasing revenue. For example, the Village of Chama in New Mexico operates a water system that serves about 1,000 people. Chama's main source of income is tourism, which has declined steeply during the pandemic. In May and June 2020 the village had to solve breakdowns at their drinking water treatment plant. Repairing the water system cost the village about \$500,000, 55% of its yearly budget, depleting Chama's financial reserves. With depleted reserves, if Chama faces any more unforeseen problems to the water system, the town won't be able to afford repairs or Chama will have to go into debt to continue service.

Sultana Community Services District (SCSD) and Hilmar County Water District (HCWD) in California have seen revenue shortages but have been able to use reserves to continue operating. Without previous investment in financial reserves, these water systems would be struggling to cover their expenses. SCSD charges a tiered rate for drinking water, starting at \$45.85 a month, about 2% of Sultana's monthly median household income. While many small water systems do not have a reserve, Sultana raised rates to begin saving for their "rainy day" fund in 2017, which has been used during this pandemic.

Many small systems are run by very small staffs. In the RCAP survey, 43% of respondents said they have one or no full-time staff. For example, HCWD,

established in 1965, has five full-time staff members (three operators, one district manager, one office manager) and one part-time account clerk. Together, the staff serve 1,700 service connections, or about 4,000 people. While HCWD qualifies for many state and federal loan programs, most grant applications are too time consuming and expensive for staff to complete. "No one pays attention to the level of staffing that smaller districts have. Grant writing firms charge a lot to put together applications and (if grants do not get accepted) then we've thrown away three to five thousand dollars. A more clearly defined outcome or guaranteed outcome would make grants more appealing," says Curtis Jorritsma, HCWD District Manager.

The economic fallout of the pandemic put additional stress on residents trying to pay their water bills. Manokotak, Alaska has a population of about 450 people, 80% of whom are Alaskan Native and 20% are White. Approximately 16% of residents live below the federal poverty line. Although there have been no cases of COVID-19 in the village, strict regulations preventing non-essential travel are in place. Many residents live paycheck-to-paycheck and have missed paychecks because of the shutdown. "It's hard for residents to pay for their day-to-day costs without income. It will be hard to buy stove oil during the cold and it will be hard for them to feed themselves. In rural villages like this there is no grocery store or food bank, there's nothing like that. We only have

to rely on one store,” says Nancy George, village administrator for Manokotak (George 2021).

One in eight Californians, most of whom are not customers of small systems, hold some amount of water debt. An estimated 155,000 households, primarily in Southern California, carry over \$1,000 of water-related debt. Deborah Bell-Holt, a customer with the Los Angeles Department of Water and Power, told Jackie Botts of CalMatters that she is nearly \$15,000 behind on her water and energy bill. She supports 12 people in her house, many of whom have lost jobs during the pandemic. “They say you’re safe,” she told CalMatters. “But you see that bill. How is that supposed to make you feel? You’re scared to death.” (Botts 2021). Although there is currently a state shutoff moratorium, residents in debt are scared. The day the moratorium ends could be the day their water is shut off for nonpayment.

In Charlotte, North Carolina, 10% of the city’s water customers, or 34,000 accounts, are currently on a payment plan. More than 12,000 customers meet the criteria that would typically result in water shutoffs and could be shut off at any point (Morabito 2021).



Source: J. Carl Ganter / circleofblue.org

The average reported utility (water and energy) delinquency is \$1,277 in the City of Independence, Missouri, yet the average income is slightly more than \$2,000 per month. The Community Services League of Independence assisted customers with financial aid applications in October 2020. They published the applicants’ stories, and one applicant wrote, “My husband had a heart attack right before the shutdown and was off work for 4 months due to the risk of COVID-19. My hours were cut. Rent, electric, gas, and food became more difficult. It caused my depression and anxiety to elevate and I had to take time off work. We began living off of credit cards.” (Cowan 2020).

Revenue shortfalls are primarily caused by unpaid water bills and declines in water usage. If customer support is administered widely, small water systems will have revenue. The financial challenges for customers are visceral and dire, particularly for customers of color, who are also disproportionately impacted by the pandemic itself. Immediate assistance for ratepayers late on their water bills is needed. “They need it now,” says Michael Prado, Sr., SCSD Board President. “If we don’t get relief soon, it’s going to be bad, they (SCSD customers) are going to get loans to pay (their) water bill.” (Prado Sr 2020).

Another challenge for water systems has been maintaining sufficient supplies of PPE throughout the pandemic. SCSD is a small water system in Tulare County, California that has seen a 30% reduction in revenue during the pandemic. Board President Michael Prado, Sr. noted that purchasing PPE for utility staff has imposed a large and unanticipated financial burden, in addition to requiring considerable time to find and acquire. Operators in Manokotak, Alaska can access PPE because the village’s insurance contractor, Alaska Municipal League Joint Insurance Association, provides hand sanitizer, masks, shields, and some body suits.

CONCLUSION

Extrapolating from California and national survey responses suggests that SCWS nationwide may be experiencing between half and one and a half billion dollars in annual lost revenue. Total household water debt is likely even higher. The impacts vary widely, depending on the relative number of residential, commercial, industrial, and institutional customers a system serves. While most arrears will likely be repaid, postponing such payments stresses the many SCWS with less than six months of cash reserves, while also leaving the impact of these increasing bills predominately on some of the most vulnerable populations across the country.

Water system staff interviewed for this report emphasized that primarily residential customers are increasingly unable to pay their water bills, thereby decreasing revenue. For example, an increasing number of SCSD customers struggle to pay their water bill each month. Some SCSD customers were struggling to pay their water bills before the pandemic, but as the pandemic stretched into winter 2020, customers who could previously pay their water bills began defaulting. The loss of residential revenue would likely cripple a small system without reserves built up to cover the cost of lost revenue. In this case, SCSD raised rates to begin saving for its “rainy day” fund in 2017. Without previous investment in financial reserves, SCSD would be struggling to cover its expenses.

Despite serving almost 18% of the U.S. population, the continuing financial struggles of SCWS and their customers have received limited attention. Revenue losses are primarily caused by unpaid water bills and drops in water usage. Many water customers face significant financial challenges and daunting debt because of the pandemic-caused economic recession and steadily increasing costs of water.



Source: RCAP

This study reveals significant gaps in our knowledge about the status of SCWS finances and those of their customers. There are a wide range of ways SCWS bill customers and track and report their financials, making standardized surveys time-consuming and challenging. In addition, most states do not require water systems to report the scale of customer debt or water shutoffs and even when they do, they often lack socioeconomic information. Moving forward, states should prioritize continuous data collection of SCWS financial need, household utility debt, and number of water shutoffs in order to map the scale of the problem and track progress on solutions.

As climate change increases the intensity and frequency of intense weather events and the long-term timing and availability of water resources across the country, water systems must be financially and physically prepared for adaptation. In addition, federal assistance will be necessary to prevent passing unaffordable costs of infrastructure improvements onto low-income customers. For example, Texas will need to weatherize its infrastructure, many coastal cities

may have to relocate their wastewater infrastructure to prevent salinization and seawater intrusion, and many SCWS, especially in arid western states, are vulnerable to drought and groundwater overdraft. Interim- and long-term support for vulnerable SCWS will be an important step for ensuring everyone has access to safe, affordable, clean drinking water. Support targeting SCWS and their customers is especially necessary because SCWS have smaller economies of scale and their customers are both the hardest group of drinking water users to serve and arguably those greatest in need. Providing financial assistance for customers offers the dual benefit of improving household financial health and increasing revenue for SCWS.

Access to clean, reliable water is critical, especially during a pandemic. SCWS play a valuable but frequently under-appreciated role in providing such water to a significant percentage of the people in the United States. There is broad support for a federal customer assistance program and additional funding for technical assistance and capital improvements for SCWS. Together, these programs can ensure that utilities stay in operation and customers maintain access to water.

POLICY RECOMMENDATIONS

The data provided through various surveys show that there is a significant need to ensure that small water systems can continue to operate, and their customers can live healthy and safe lives. Without federal assistance, many small systems, and their customers, may be at risk. To address the needs identified in the surveys, we recommend targeting federal relief to utilities and customers. Recent studies have found broad support for a federal customer assistance program and additional funding for technical assistance and capital improvements for SCWS (Water Foundation et al. 2020; Feinstein 2021).

RECENT STATE AND FEDERAL ACTIONS

In late December 2020, for the first time ever, Congress appropriated \$638 million in assistance for low-income water and wastewater customers. An additional \$500 million was appropriated through the March 2021 American Rescue Plan, which provides grants to states and Tribes to assist low-income households. The American Rescue Plan targets those that pay a high proportion of household income for drinking water and wastewater services by providing funds to owners or operators of public water systems or treatment works to reduce arrearages of and rates charged to such households for such services.

RECOMMENDED FEDERAL ACTIONS

Utility-focused aid should include direct funding and financing for infrastructure projects that ensure each system has the necessary resources to maintain safe and affordable water, wastewater, and waste disposal service. This should include the Drinking Water State Revolving Funds (including grants and zero interest loans to local governments), sewer overflow control grants, water workforce development grants, and grants for lead treatment, remediation, and replacement. Specifically, the federal government can:

- **Enact the Emergency Assistance for Rural Water Systems Act**, which would provide over \$1 billion in emergency grants, zero interest loans, and loan forgiveness to small and rural water systems. This is needed because recently enacted funding may miss rural and small systems, given the need in urban areas. Other provisions in the legislation include:
 - Temporary operations & maintenance relief funding;
 - Access to grants and low interest (1%) financing through USDA-Rural Utilities Service;

- Emergency loan deferrals and forgiveness programs, and increases in emergency grants; and
 - Increased technical assistance for small water systems.
 - **Continue funding federal programs that support small and rural communities.** Local governments fund 95% of all local water infrastructure needs, primarily through user fees. The USDA Rural Utilities Service Water & Waste Disposal Loan & Grant Program (\$1.5 billion) provides funding for infrastructure improvements. An additional \$50 million in funding for third party technical assistance through USDA Rural Utility Service and EPA's Office of Water is also needed.
 - **Provide \$1 billion in direct funding to the U.S. Economic Development Administration (EDA) through the Economic Adjustment Assistance program.** Although this is not a block grant, the EDA is well-experienced with administering adjustment assistance to industries impacted by unforeseen circumstances. These funds would be especially useful for rebuilding impacted industries, such as tourism or manufacturing supply chains. Include additional funding for EDA's National Technical Assistance and Research and Public Works Programs to be able to provide capacity building and services to small and regional communities looking to access EDA dollars (\$30 million). **As a part of this allocation, include \$20 million in a national technical assistance program designed to assist distressed communities in applying and accessing EDA-19 funds through the EDA Research and National Technical Assistance program.**
 - **Pass the Reinforcing Utility Restoration After Losses Act (H.R. 7680).** This act would establish a permanent bridge loan program at USDA's Rural Utility Service, directly supporting the operational costs for electric, telephone, and water utilities that have experienced revenue losses as a direct result of the COVID-19 crisis. This loan program will also be available for future covered emergencies. H.R. 7680 would create an affordable and permanent line of credit at 1% interest with no payments required during the designated emergency period, and includes a three-tiered forgiveness formula based on the principal balance. This proposal, if enacted, would enhance the USDA Rural Utilities Service's existing tools to deploy during this emergency and for future covered emergencies to provide the financial sustainability necessary for the impacted rural utilities to continue to offer continuity of essential services.
- Customer-focused aid should increase funding assistance for low-income water and wastewater customers, who need **\$8 billion** from Congress to meet the true need in their communities. Specifically, the federal government can:
- **Fund a national Low-Income Households Drinking Water and Wastewater Assistance/ Affordability program** to help struggling households pay for essential water and wastewater services. Revitalize the Low-Income Water Customer Assistance Programs Act of 2018 which establishes at least 32 pilot programs for low-income residents to receive aid in paying their drinking water bill and wastewater utility bill, and requires EPA to conduct a study on the cost and best methods of transitioning from a pilot program to a nationwide program.

Finally, to ensure that vulnerable communities reliant on wells and decentralized systems are not left out, Congress can:

- Support funding of at least **\$10 million** for the USDA Decentralized System Grant Program.
- Enact the **Decentralized Wastewater Grant Act** (H.R. 5856), which would create a new grant program under the Clean Water Act to provide funding to qualified nonprofit organizations to help low-income households with the costs associated with proper wastewater infrastructure.

In the long term, states or the federal government could eliminate late and reconnection fees, especially for low-income customers who are more likely to be disconnected as a result of non-payment; such a program would benefit many customers of color.



Source: RCAP

References

- American Water Works Association. 2014. *Thinking Outside the Bill: A Utility Manager's Guide to Assisting Low-Income Water Customers*. <https://www.awwa.org/Portals/0/AWWA/ETS/Resources/ThinkingOutsidetheBill-2Ed.pdf>.
- American Water Works Association. 2020. *COVID-19 Utility and Water Sector Organization Impact Survey (June 8-15, 2020)*. July. <https://www.awwa.org/Portals/0/AWWA/Communications/COVID-19Impact4thSurveyPublicSummary.pdf>.
- American Water Works Association Illinois Section. 2020. *COVID-19 Impact on Utilities Survey Results*. April. <https://cdn.ymaws.com/www.isawwa.org/resource/collection/AF6DE88F-7824-45FC-BEBC-A7253F747E73/COVID-19 - Impact on Utilities Survey Results.pdf>.
- Barles, Robert. 2018. *Drinking Water Infrastructure Needs Survey and Assessment*. Washington, DC: U.S. EPA.
- Botts, Jackie. 2021. "Unpaid Water Bills Top \$1 Billion in California." *CalMatters*, January 26. <https://calmatters.org/california-divide/2021/01/water-debt-california-households-face-water-shutoffs/>.
- Butts, Rachel, and Stephen Gasteyer. 2011. "Environmental Reviews & Case Studies: More Cost per Drop: Water Rates, Structural Inequality, and Race in the United States—The Case of Michigan." *Environmental Practice* 13 (4): 386–95. <https://doi.org/10.1017/S1466046611000391>.
- Cowan, Doug. 2020. "Bottom Line: Families Are Still Struggling." *Community Services League* (blog). <https://www.cslcares.org/single-post/bottom-line-families-are-still-struggling>.
- East Bay Municipal Utility District. n.d. "East Bay Municipal Utility District: Customer Assistance Program." EBMUD Customer Assistance Program. Accessed March 18, 2021. <https://www.ebmud.com/customers/customer-assistance-program/>.
- Eastman, Luke, Erika Smull, Lauren Patterson, and Martin Doyle. 2020. *COVID-19 Impacts on Water Utility Consumption and Revenues Through August 2020*. Raftelis, December 29. Accessed February 2021. <https://www.raftelis.com/insight/covid-19-impacts-on-water-utility-consumption-and-revenues-through-august-2020/>.
- Environmental Finance Center. 2020. "California Small Water Systems Rates Dashboard." University of North Carolina. Accessed January 2021. <https://efc.sog.unc.edu/resource/california-small-water-systems-rates-dashboard>.
- Eskaf, Shadi. 2020. *COVID-19 Conditions' Financial Effects on 49 Small Water Systems in North Carolina*. Environmental Finance Center Network, June 29. Accessed August 30, 2020. <https://efcnetwork.org/covid-19-conditions-financial-effects-on-49-small-water-systems-in-north-carolina/>.
- Feinstein, Laura. 2021. *Keeping the Water On*. SPUR. https://www.spur.org/sites/default/files/2021-03/spur_keeping_the_water_on.pdf.

- George, Nancy. 2021. Village of Manokotak. Phone interview with Pacific Institute, January 19. https://pacinst.org/wp-content/uploads/2021/02/PI_CovidCaseStudy_Manokotak.pdf.
- Griffin, Kevin. 2020. "COVID-19 Strains Rural NC Water, Utility Systems," *Raleigh News & Observer*, August 7, 2020. <https://www.newsobserver.com/news/local/article244745542.html>.
- Holmes, Lillian, Morgan Shimabuku, Laura Feinstein, Greg Pierce, Peter Gleick, and Sarah Diringer. 2020. *Water and the COVID-19 Pandemic: Equity Dimensions of Utility Disconnections in the US*. Oakland, Calif: Pacific Institute.
- Lakhani, Nina. 2020. "Revealed: Millions of Americans Can't Afford Water as Bills Rise 80% in a Decade." *The Guardian*, June 23, 2020. <https://www.theguardian.com/us-news/2020/jun/23/millions-of-americans-cant-afford-water-bills-rise>.
- Montag, Coty. 2019. *Water/Color: A Study of Race & the Water Affordability Crisis in American Cities*. Thurgood Marshall Institute at the NAACP Legal Defense and Educational Fund, May 31. https://www.naacpldf.org/wp-content/uploads/Water_Report_FULL_5_31_19_FINAL_OPT.pdf.
- Morabito, Nate. 2021. "'It's taking its toll on me' | Hundreds of thousands behind on utility bills across North Carolina." Charlotte, NC: WCNC. January 21. <https://www.wcnc.com/article/money/its-taking-its-toll-on-me-hundreds-of-thousands-behind-on-utility-bills/275-af7d8a48-7228-48a8-86af-17f8c4d61723>.
- National Rural Water Association. 2020. National Water Utility Survey | Impacts of COVID-19 Emergency. May. Accessed August 25, 2020. <https://www.surveymonkey.com/stories/SM-2KM7WL39/>.
- Prado Sr, Michael. 2020. Sultana Community Services District Board President. Phone interview, November 24. https://pacinst.org/wp-content/uploads/2021/02/PI_CovidCaseStudy_SultanaAndMonson.pdf.
- Raftelis. 2020. *The Financial Impact of the COVID-19 Crisis on U.S. Drinking Water Utilities*. April 14. https://www.awwa.org/Portals/0/AWWA/Communications/AWWA-AMWA-COVID-Report_2020-04.pdf.
- Raftelis. 2020. "Water Bill Delinquencies Skyrocket | Key Takeaways from Raftelis' Utility Survey." December. https://mcusercontent.com/d4c3c6f8a598f6bdb93c2975c/files/feaaee6c-dff0-4b04-b225-ec91ae1c4115/Delinquency_Survey_Summary.pdf.
- U.S. EPA. 2017. Use of Drinking Water State Revolving Fund (DWSRF) Set-Asides. Reports and Assessments. Washington, DC: U.S. EPA. October 25. Accessed February 1, 2021. <https://www.epa.gov/dwcapacity/use-drinking-water-state-revolving-fund-dwsrf-set-asides>.
- U.S. EPA. 2020. "SDWIS Federal Reports Advanced Search." Accessed September 8, 2020. <https://ofmpub.epa.gov/apex/sfdw/f?p=108:1:::1::>
- Walton, Brett. 2020. "Millions of Americans Are In Water Debt." Circle of Blue (blog). August 4, 2020. <https://www.circleofblue.org/2020/world/millions-of-americans-are-in-water-debt/>.

Water Foundation, Western United Dairymen, Lift to Rise, RCAC, et al. 2020. “Include Urgently Needed Funding for Water Infrastructure and Water Affordability Needs in Next Congressional Response to COVID-19 Pandemic.” Letter to California Congressional Delegation. June 22, 2020. https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/3927/attachments/original/1592942678/CA_Congressional_Delegation_Letter_6.22.20.pdf?1592942678.

Washington State Department of Health. 2020. *2020 Water and Wastewater Utility Impact Survey Findings*. August 14. <https://www.doh.wa.gov/Portals/1/Documents/4200/2020-Utility-Impact-Survey-Findings.pdf>.

Case Studies

Hilmar County Water District. Case study is based on an interview with Curtis Jorritsma, District Manager, in November 2020. https://pacinst.org/wp-content/uploads/2021/02/PI_CovidCaseStudy_Hilmar.pdf

Sultana Community Services District. Case study is based on an interview with Michael Prado, Sr., Board President, on November 14, 2020. https://pacinst.org/wp-content/uploads/2021/02/PI_CovidCaseStudy_SultanaAndMonson.pdf

Village of Chama. Case study is based on news coverage, an engineering report, and an interview with Nicole Mangin in November 2020. https://pacinst.org/wp-content/uploads/2021/02/PI_CovidCaseStudy_Chama.pdf

Village of Manokotak. Case study is based on an interview with Nancy George, Administrator for the Village of Manokotak, on January 19th, 2021. https://pacinst.org/wp-content/uploads/2021/02/PI_CovidCaseStudy_Manokotak.pdf.

Surveys

California State Water Resources Control Board. 2021. COVID Drinking Water Dataset. V2. February 3. Accessed February 3, 2021. https://www.waterboards.ca.gov/drinking_water/programs/documents/ddwem/covid_financial_survey_data.xlsx.

California State Water Resources Control Board. 2020. “Water System COVID-19 Impacts Questionnaire” and responses, data provided electronically by Board staff on August 28, 2020.

Rural Community Assistance Partnership. 2020. RCAP Survey Shows Impact of COVID-19 on Rural and Tribal Water and Wastewater Systems. June 1. Accessed August 25, 2020. <https://www.rcap.org/rcap-survey-shows-impact-of-covid-19-on-rural-and-tribal-water-and-wastewater-systems/>.

U.S. Environmental Protection Agency. 2020. COVID-19 Water Sector Survey. October 1. Data provided electronically by staff on March 17, 2021. <https://www.epa.gov/ground-water-and-drinking-water/covid-19-water-sector-survey>.

Appendix

Table A-1. State and National Surveys on the Financial and Operational Impacts of COVID-19 on Water Systems

Survey Organization	Geographic Area	Sample Size (Small Systems, Large Systems)	Survey Dates	Key Attributes
Rural Community Assistance Partnership	National	1,033 (991, 42)	May 2020	<p>Surveyed systems RCAP worked with in past years</p> <p>Data includes revenue changes, primary COVID-related challenges, duration of ability to operate, and average population served</p> <p>Partial raw data available</p>
National Rural Water Association	National	4,636 (4,311, 325)	April 2020	<p>Change in water use and revenue, COVID-related concerns</p> <p>Raw data not available</p>
U.S. Environmental Protection Agency	National	(743)	November-December 2020	<p>Comparison of budgeted revenue and expenses with actual revenue and expenses for 2020</p> <p>Includes information on non-financial impacts, including supply chain, workforce, and support</p> <p>Raw data not available</p>
California State Water Resources Control Board	California	213 (123, 90)	June-August 2020	<p>Voluntary survey that may not be representative of whole state</p> <p>Revenue loss as percentage of revenue and cash reserves</p> <p>Raw data available</p>
California State Water Resources Control Board	California	536 (276, 260)	November 2020	<p>Statistically representative sample of the state with outreach to assist small systems</p> <p>Month-by-month revenue and expenses, cash reserves</p> <p>Raw data available</p>
American Water Works Association, Illinois Section	Illinois	141	April 2020	<p>Operational and financial impacts to systems, but no quantitative financial data</p> <p>Raw data available</p>
American Water Works Association, Illinois Section	Illinois	73	June 2020	Raw data available
Washington State Department of Health	Washington State	314 (216, 98)	May-July 2020	<p>Results not divided by system size</p> <p>Predicted impact on statewide capital projects</p> <p>Raw data not available</p>

Survey Organization	Geographic Area	Sample Size (Small Systems, Large Systems)	Survey Dates	Key Attributes
American Water Works Association, Association of Metropolitan Water Agencies, Raftelis	National	532	March 2020	Combination of Raftelis survey on large systems and AWWA to estimate financial and economic impacts Raw data not available
American Water Works Association	National	421 (187, 234)	June 2020	High levels of revenue and cash-flow issues Raw data not available
Environmental Finance Center at the University of North Carolina (All EFC COVID-19 Resources)	North Carolina	95 (49, 46)	April-May 2020	Revenue change, impacts on capital projects, and rates Raw data not available
Raftelis	National	69 (All Large)	August-September 2020	Revenues compared to budgets rather than previous year's revenue Customer Assistance Program and Payment Plan Enrollment Raw data not available
State of California Public Utilities Commission	California Investor-Owned Utilities	8 (All Large)	January-September 2020	Arrears and rate assistance enrollment data for California's largest private utilities Raw data available

Table A-2. Contacts and Dates of Interviews for Case Studies

Interviewee	Position	Water Agency	Date of Interview
Curtis Jorritsma	District Manager	Hilmar County Water District	November 2020
Michael Prado, Sr.	Board President	Sultana Community Services District	November 2020
Nancy George	City Administrator	Manokotak Water System	January 2021
Nicole Mangin	Contractor, Mountain Pacific Meter Tech Service	Village of Chama	November 2020



Pacific Institute
654 13th Street
Preservation Park
Oakland, California 94612
510.251.1600
info@pacinst.org



**Rural Community
Assistance Partnership, Inc.**
1725 I St NW #225
Washington, DC 20006
202.408.1273
info@rcap.org
www.rcap.org



**Rural Community
Assistance Corporation**
3120 Freeboard Drive, Suite 201
West Sacramento, CA 95691
916.447.2854

ISBN: 978-1-940148-13-7

© 2021 Pacific Institute. All rights reserved.