

CWS COVID-19 SURVEY REPORT

Maine Community Water Systems COVID-19 Survey Report & Findings

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PROJECT OVERVIEW & METHODOLOGY

COVID-19 has upended the lives of those living in Maine causing widespread and far-reaching implications for many workplaces. A critical part of the nation's infrastructure, the drinking water industry is no exception and has been impacted in more ways than one, including shortages, financial difficulties, health and safety, and more. While common emergencies are often well prepared for in this industry due to state and federal regulations, as well as a general proclivity to preparedness, much of the focus has been on natural disasters and malevolent acts. Due to previous pandemics and other health related emergencies, a level of preparedness did exist, and some areas proved more resilient than others. However, the COVID-19 pandemic caused hardship for community water systems (CWS) across the State of Maine.

Although COVID-19 is ongoing for the foreseeable future, there was recognized need to debrief community water systems now on the successes and challenges encountered over the initial year of the pandemic. If too much time passed, prior to a debrief then the window to capture key details would have been lost after restoration of normal operations. Utilizing federal standards, reports, and questionnaires, such as those set under the Environmental Protection Agency's (EPA) and America's Water Infrastructure Act of 2018 (AWIA), survey questions were developed and beta tested by multiple CWSs and other stakeholders.

On January 26, 2021, almost a year after the start of the COVID-19 shutdown, the survey was launched to measure the impact of COVID-19 and to identify challenges faced by Maine's CWSs. The survey encompassed several areas in which utilities may have felt impacts of this global emergency on a local level. The goal of the survey was to identify strengths in emergency protocols that need to be maintained and conversely recognize potential areas of improvement to be made moving forward.

The survey concluded on March 12, 2021 with a total ninety-six (96) respondents that ranged from small systems with less than 500 connections to large systems with greater than 10,000 connections. With the data collected and analyzed, the following report was generated to assist CWSs in examining their resiliency, preparedness, and response to, not only COVID-19, but also future pandemics and other health-related emergencies.

Basic Information about Respondents

The cross section of respondents includes a total of 96 individual systems ranging in size from “very small” to “large,” which represents about 1/3 of the roughly 300 systems who received the survey. Some responses were collected from the same respondent as that individual was the primary contact or the contract operator for multiple systems surveyed. In such cases, respondents were requested to complete the survey multiple times from each point of view individually instead of collectively.

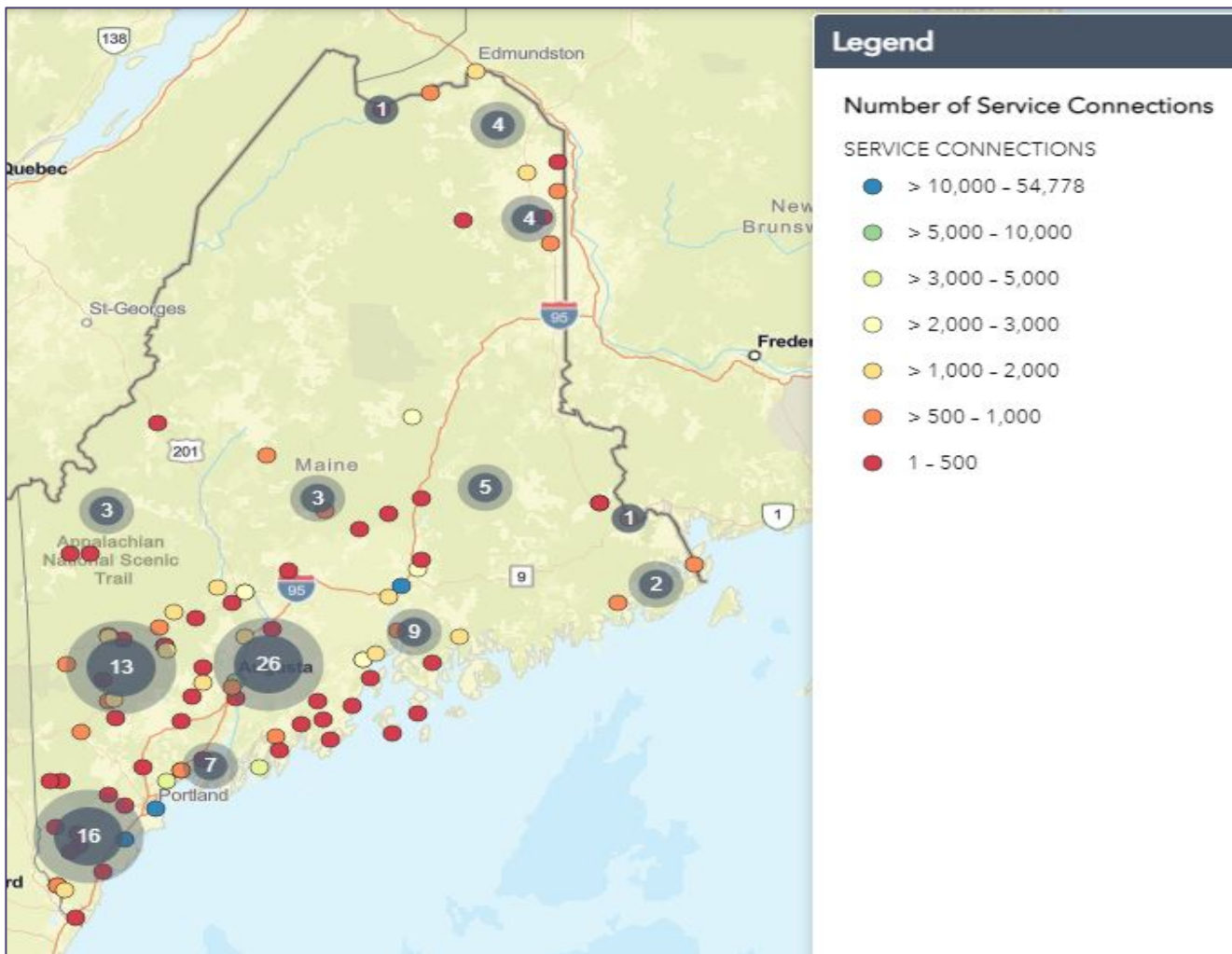


Figure 1 Map of survey respondents by location and size.

Normal & Critical Staff

General information was collected to provide insight into each system's situation and capabilities. Normal staff refers to those responsible for general tasks completed as part of operating a CWS, which includes but is not limited to billing, operations, and maintenance. Critical staff refers to those who aid the system in providing safe drinking water and fire protection if applicable.

Normal	# of Staff
Average	12
Median	4
Lowest	1
Highest	140

Figure 2

Critical	# of Staff
Average	6
Median	3
Lowest	1
Highest	80

Figure 3

The median indicated that among the respondents 4 staff were normally integral to the functioning of the system, while only 3 were critical.

Cross-Trained Staff

In the drinking water industry, cross-training is an important indicator of resiliency and is especially relevant in pandemic situations. The higher the percentage of cross-training at a CWS allows staff to perform necessary and critical operations and maintenance even when normal staff are unavailable.

Percentage of Cross Trained Staff

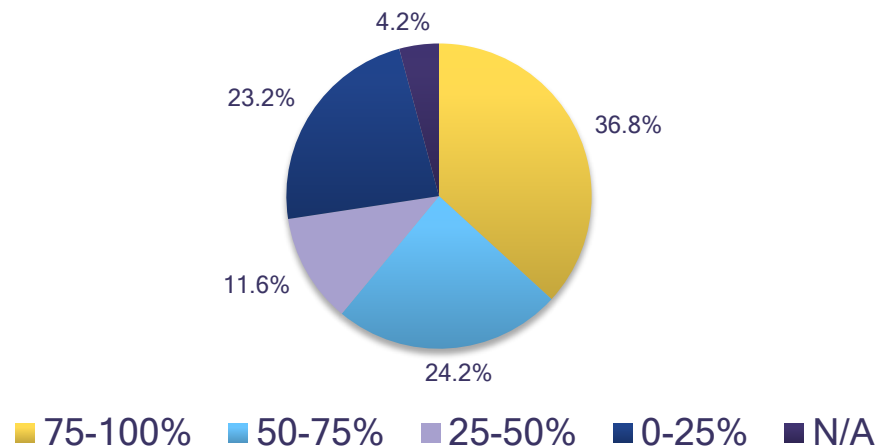


Figure 4

Figure 4 shows that 36.8% of the survey respondents indicated that 75-100% of their staff is cross trained. 24.2% of the survey respondents indicated that at least half of their staff was cross trained. 39% of the respondents indicated having 50% or less of their staff cross trained.

Pandemic Response Plans

Most emergency response plans (ERP) in Maine do not include pandemics nor other related health emergencies as part of the ERP or in a separate document. Of those who did have pandemic response planning included in

their ERP the focus was primarily on maintaining critical operations and services and critical supplies and equipment.

Pandemic Response Plans

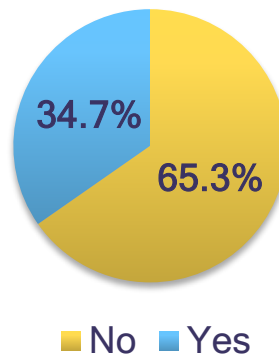


Figure 5

Roles and responsibilities and protecting employees' health during a pandemic were not consistently addressed. Communications with customers, local/state health officials, and the Drinking Water Program (DWP), was also lacking in the respondents' plans and procedures.

Standard Operating Procedures

Written standard operating procedures (SOP) may allow untrained individuals to follow predetermined steps to perform critical operations and maintenance. Maintaining up-to-date SOPs is another indicator of resiliency and preparedness. As shown in Figure 6 below 21.1 % of respondents lack the SOPs needed to ensure critical operations and maintenance continues should a pandemic occur.

SOPs for Critical Functions

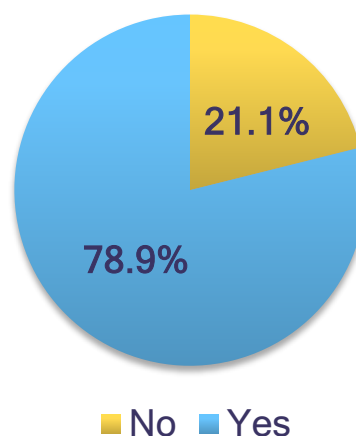


Figure 6

Financials

The survey sought to provide insight as to the financial status of the respondents prior to COVID-19, during the pandemic, and their future expectations and/or outlooks.

Revenue Impact

Almost 10% of respondents saw an increase in overall revenue, the majority remained the same, and 31.6% of respondents experienced a decrease in revenue.

Revenue Impacts

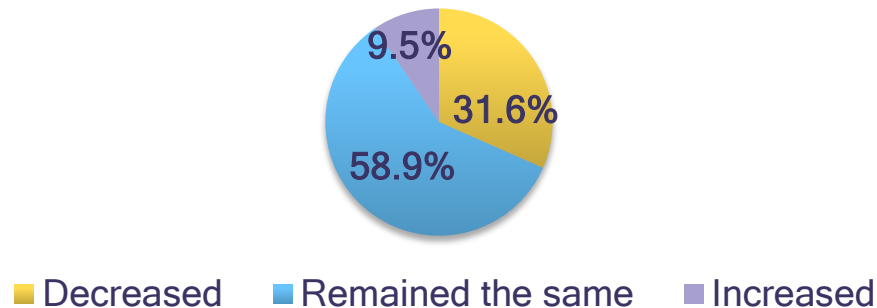


Figure 7

Increase in customer non-payment of bills

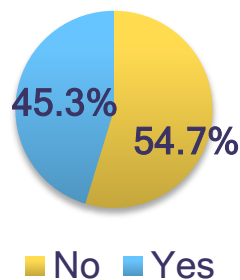


Figure 8

Although Figure 8 shows 31.6% of respondents indicated that their revenue decreased and 45.3% saw an increase in non-payment of bills, only 3.2% of respondents stated that the non-payment impacted their ability to remain financially stable.

15.8% had experienced financial instability that stemmed from issues apart from non-payment of bills. 23.2% of respondents reported such price alterations for critical chemicals, parts, equipment, and more. Overall, 84.2% were able to maintain their financial stability, while 19% indicated trouble with financial stability.

Financial Assistance and Rate Increases

97.9% of respondents indicated that they did not seek outside financial assistance to deal with financial difficulties. Only half of those who sought assistance were able to secured it. Merely 3.8% of applicable CWSs expected to pursue a rate increase directly due to COVID-19.

Rate Increase Expected Due to COVID-19

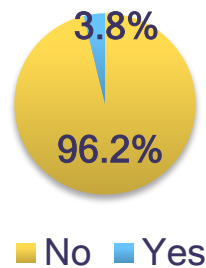


Figure 9

Contingency/Emergency Savings

As part of ERPs, CWSs should plan for financial emergencies by maintaining emergency or contingency savings. On average, COVID-19 cost \$9,113 per CWS, ranging from \$0 - \$175,000.00 depending on the system. Prior to COVID-19, 64.2% of respondents indicated they had emergency savings while 35.8% did not. The majority of those with savings had no change or increased their savings. 8.5% of those with savings accounts somewhat depleted or depleted their emergency funds to remain financially stable.

Status of Emergency Savings

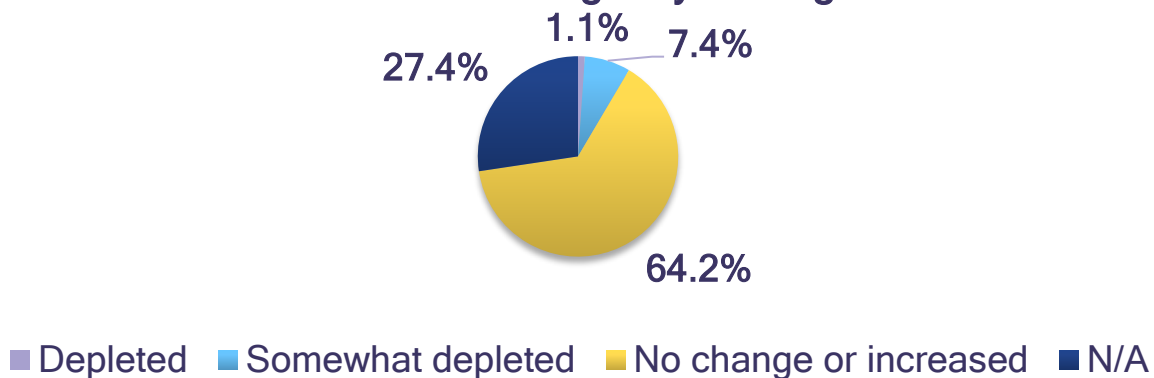


Figure 10

Looking Forward Financially

Considering the findings thus far, 92.6% of respondents expect that they can continue to pay for all expenses, salaries, operations and maintenance for longer than one year. Under the current situation, 7.4% expect to have hardship in meeting their financial needs in six months to a year. Capital improvement projects, preventative maintenance, and complying with regulations topped the list of COVID-19 related financial challenges.

Health & Safety Considerations

Maintaining the health and safety of staff and customers is paramount. The following section relates to the health and safety of CWS's employees and the public.

Visitor Restrictions

To limit the spread of COVID-19, most systems limited access to the CWS allowing only critical employees or contractors. Such limitations included restricting access from visitors, family members, and other non-essential staff.

Limited Access

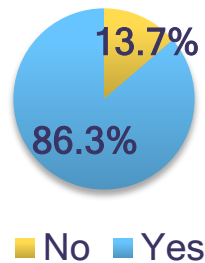


Figure 11

Obtaining Health & Safety Products

At multiple points during the pandemic, many essential products became difficult to obtain or source. The majority of respondents experienced some level of difficulty obtaining health and safety products. Most reported that the items listed in Figure 12 below were unavailable at the start of the pandemic but have gradually been restocked.

Item	Percent of respondents indicating difficulty obtaining the item
Hand Sanitizer	32.6%
Masks/face coverings	21.1%
Sterilizing Products	17.9%
Gloves	17.9%
Shields	7.4%
Other Items	7.4%
Safety Glasses	3.2%
Aprons/gowns	1.1%

Figure 12

Maintaining Critical Functions

With health and safety considerations, there was an initial concern that being able to maintain critical functions at CWSs would be hampered. However, the respondents indicated that they were able to maintain the critical functions displayed above. As shown in Figure 13, 89.5% of respondent CWSs maintained access to critical chemicals, indicating that 10.5% of respondents experienced difficulty with their supply of chemicals for treatment purposes, as well as access to critical supplies.

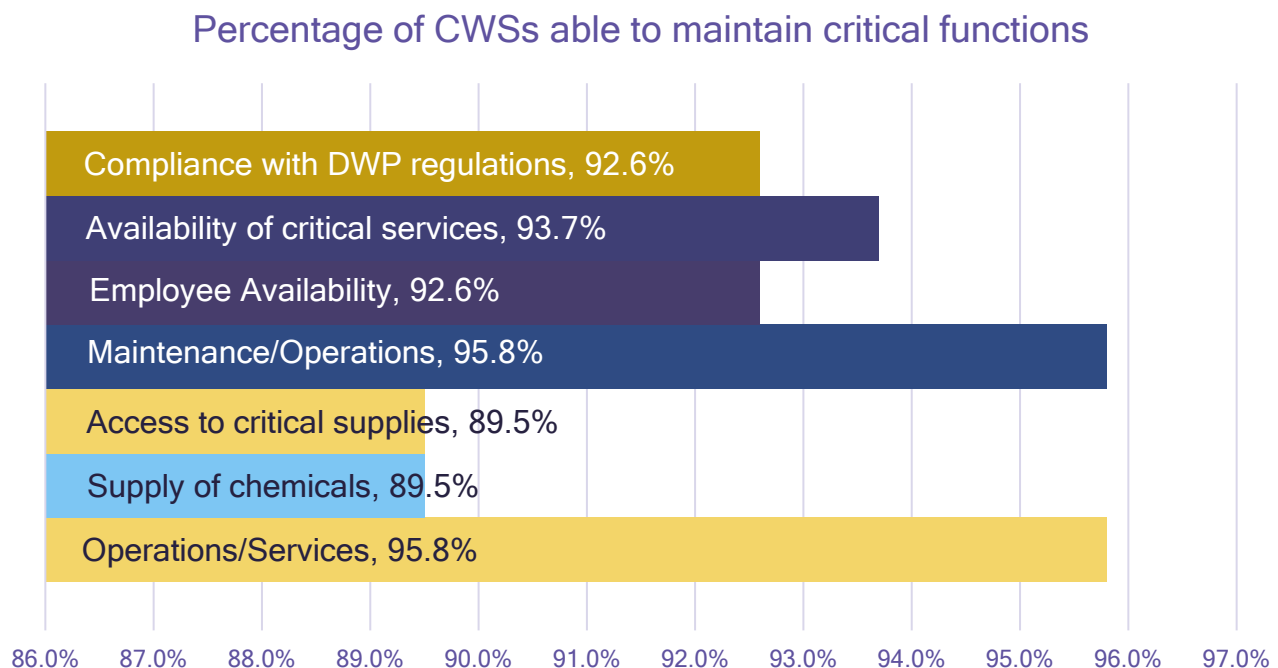


Figure 13

Chemical & Critical Equipment/Supplies Shortages

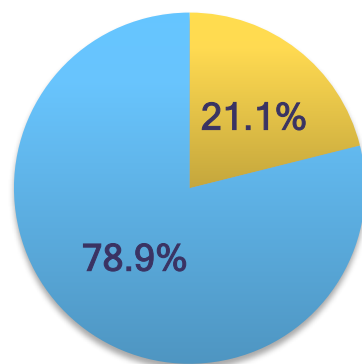
Most systems were able to maintain their supplies of critical parts and equipment. 7% the respondents experienced a shortage of over-the-counter sodium hypochlorite (e.g. household bleach) during COVID-19. In general though, few to no respondents found difficulty obtaining sodium hydroxide, soda ash, pot ash, or other chemicals. Those who had difficulties cited delays as the primary reason for obtaining the needed supplies.

3.2% responded that source water supplies and equipment were difficult to obtain. 1.1% found difficulty with treatment supplies and another 2.1% had difficulty with administrative and management supplies.

COVID-19 Contact and Contraction Policies

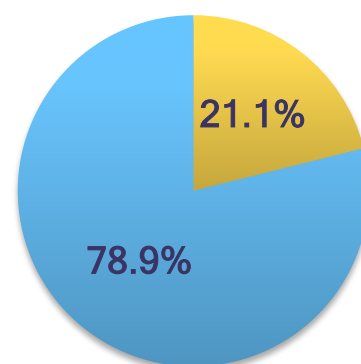
It is important to have policies in place for coming in contact or contracting the virus and both often require different responses. The survey respondents indicated that over 78% of surveyed CWSs have developed and enforced contact and contraction policies.

COVID-19 Contact Policy



■ No ■ Yes

COVID-19 Contraction Policy



■ No ■ Yes

Figure 14

Masks & Face Coverings

Social distancing, proper hygiene, masks, and face coverings were the most important measures to prevent the spread of COVID-19. Top-down leadership support of using masks and face coverings is essential to create a culture of health and safety and meet regulatory and legal requirements. Most respondents stated that masks were mandatory at their system.

Are masks required at your CWS?

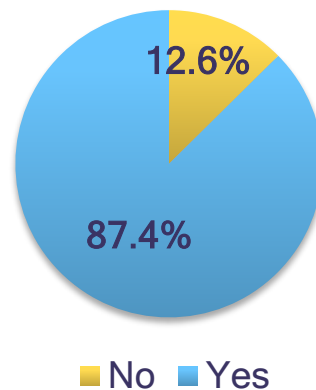
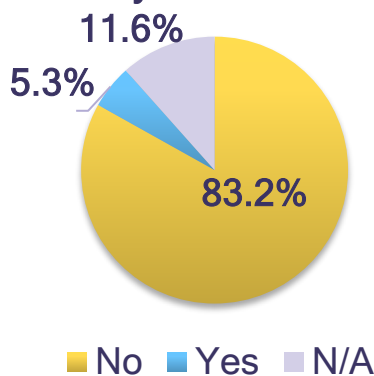


Figure 15

Travel and Credentialing

At times during the pandemic, travel and curfew restrictions were put in place. Many industries were exempt from some of these restrictions due to their criticality. Essential staff at CWSs were among those that were exempt from some of the in-state travel restrictions, but credentialing these professionals was suggested and often required to prove affiliation and criticality.

Did you experience difficulty credentialing?



Did you experience difficulty traveling for critical work?

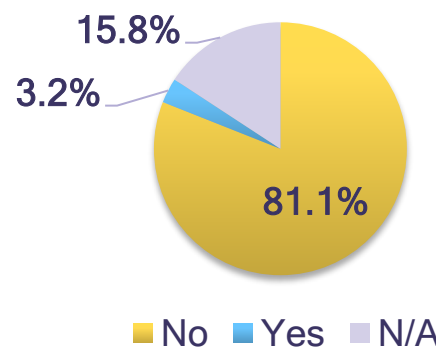


Figure 16

Most respondents had no difficulty with credentialing and were able to travel to work. 5.3% of respondents had trouble credentialing critical staff, while 3.2% further experienced trouble traveling for critical work-related purposes.

Coordinating with local and state officials to credential staff and promote awareness with authorities of the critical nature of the drinking water industry was recommended to maintain critical functions and operations at CWSs. As

shown in Figure 17, 67.5% of respondents coordinated with local and state officials while 32.5% did not coordinate with officials to credential their staff for travel.

Did you coordinate with local/state officials to credential staff and travel for work purposes?

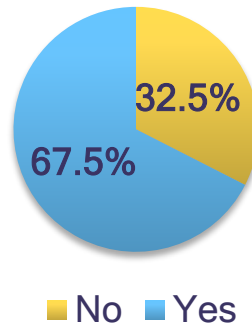


Figure 17

Public Inquiries

Much confusion surrounded the transmission of COVID-19 during the early stages of the pandemic. One misunderstanding was the possibility of COVID-19 transmission through drinking water. Therefore, communicating with the public about the safety of their drinking water became increasingly important. Most respondents indicated that their customers did not inquire with them as to the safety of their drinking water, but 8.4% did experience such inquiries.

Operations, Maintenance, & Staffing

Maintaining critical operations and maintenance, with proper staffing levels, is of high importance to continue providing safe drinking water and fire protection during emergencies.

Water Usage

Due to travel restrictions, school closures and the shift to work from home water usage changes occurred. Significant changes can impact a CWS's revenue and ability to plan for emergencies. Survey respondents indicated that 40% of systems experienced a business usage decrease, while 48.4% experienced an increase in residential usage.

CWSs' water usage during COVID-19

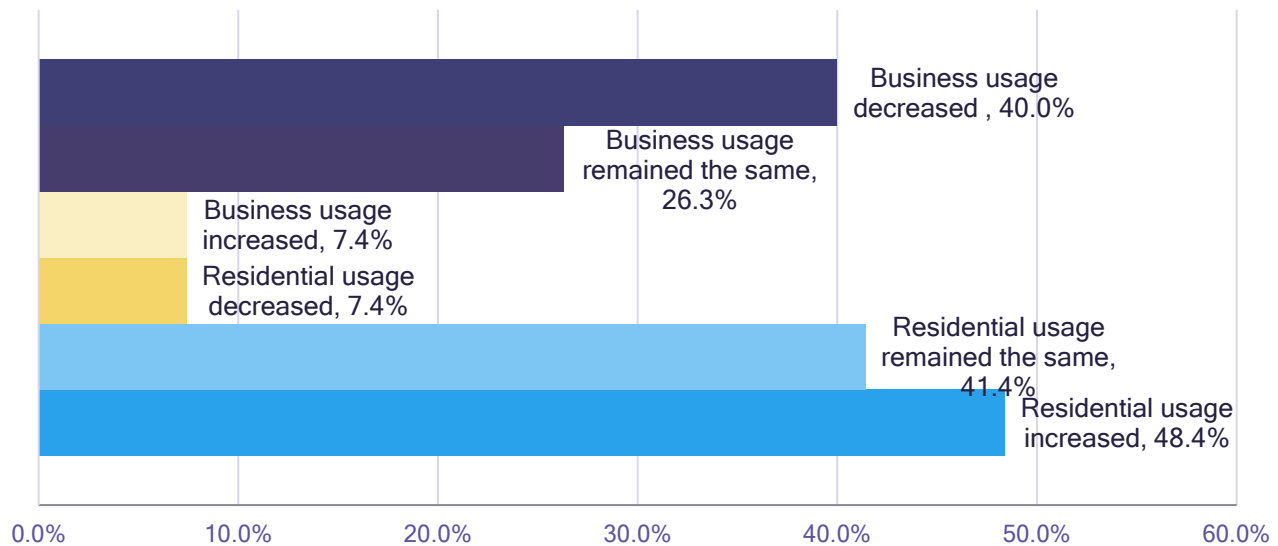


Figure 18

Operational, Maintenance, & Staffing Challenges

Almost all CWSs were able to maintain critical functions, meet minimum staffing requirements and perform emergency repairs. However, 29.7% encountered difficulty with meter installation and services, 17.4% of CWS surveyed experienced delays in preventive maintenance and issues with compliance sampling. Roughly 12% of respondents encountered trouble with protecting the safety of employees and operations/maintenance sampling.

Percentage of CWSs reporting difficulty with...

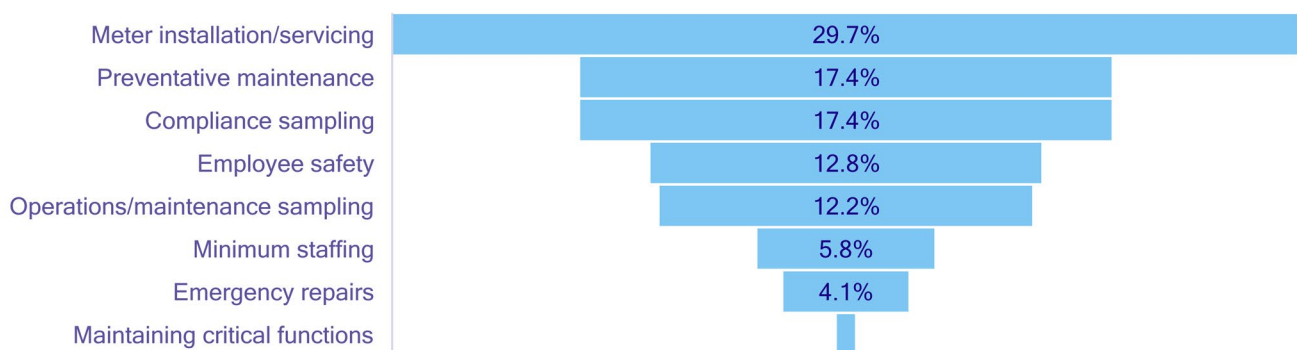


Figure 19

Mutual Aid

During COVID-19, few of the respondent made use of or provided mutual aid. For those that made use of mutual aid, the uses included personnel/staffing, technical assistance, supplies/equipment, and repairs, but none exceeded

2.1% of total respondents. Further, those providing mutual aid did so primarily for personnel/staffing and supplies/equipment purposes.

Regulatory Considerations

Regulations and policies provide guidance to systems and help to ensure that CWSs meet their mission to provide safe drinking water and fire protection. Even so, this critical part of the industry was not excluded from the impacts of COVID-19, and it is important to assess some of the more prevalent issues faced by primacy agencies and CWSs.

DWP Resources

During the pandemic, Maine Drinking Water Program (DWP) developed, facilitated, and provided critical support to CWSs state-wide. Three resources that highlight DWP response were the 1) COVID-19 website, 2) mask distribution activities, and 3) direct communication with DWP staff. Not all CWSs took advantage of the DWP's assistance but of those who did, the majority found email blasts the most helpful resource followed by the website, mask distribution efforts, and direct communication by DWP staff.

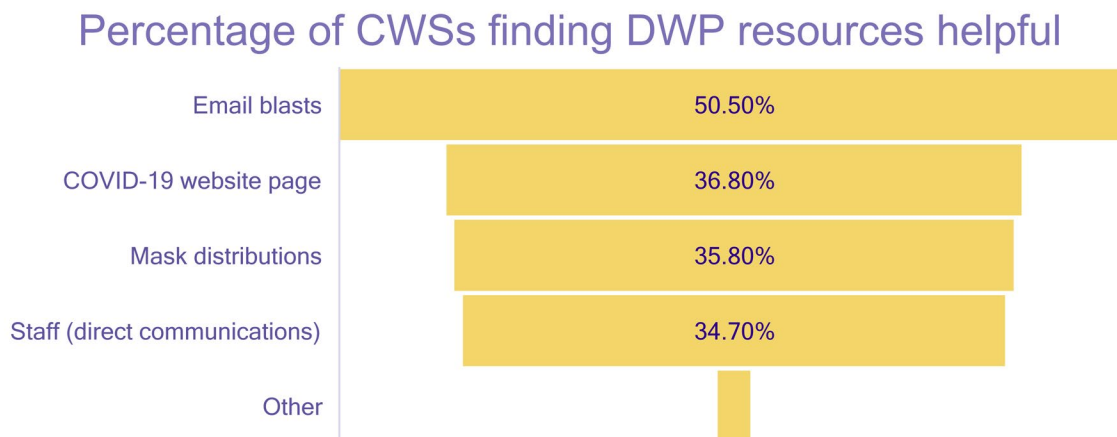


Figure 20

Most systems were aware of the resources shown in Figure 20 prior to taking part in the survey. However, 29.5% still indicated that they were unaware of all the DWP's pandemic resources and assistance.

DWP Resources Awareness

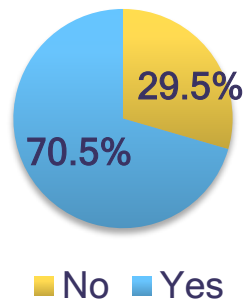


Figure 21

Laboratory Testing

Outside laboratory services also experienced disruptions during the pandemic, but only 3.2% of survey respondents indicated difficulty having their samples analyzed/tested by their service providers during COVID-19.

Outside Lab Testing Difficulty

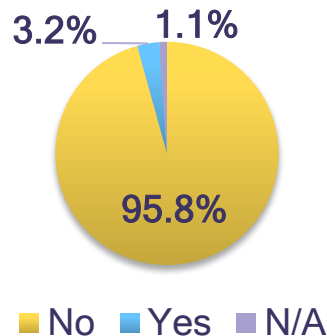


Figure 22

Public Meetings & Hearings

Many systems successfully pivoted to online and/or remote alternatives with guidance from regulators such as the DWP and Maine Public Utilities Commission (PUC). 49 total respondents indicated that they were able to hold public meetings by making use of online conferencing/meeting platforms or remotely by telephone. 29 systems continued to offer in-person meeting options, while 17 systems offered a hybrid between the two options. 20 systems were not required to hold these meetings and hearings, either because the regulations do not apply or there were no situations requiring them. Lastly, 7 systems were wholly unable to hold their public meetings and hearings due to COVID-19.

Public Meetings/Hearings during COVID-19 (multiple choice)

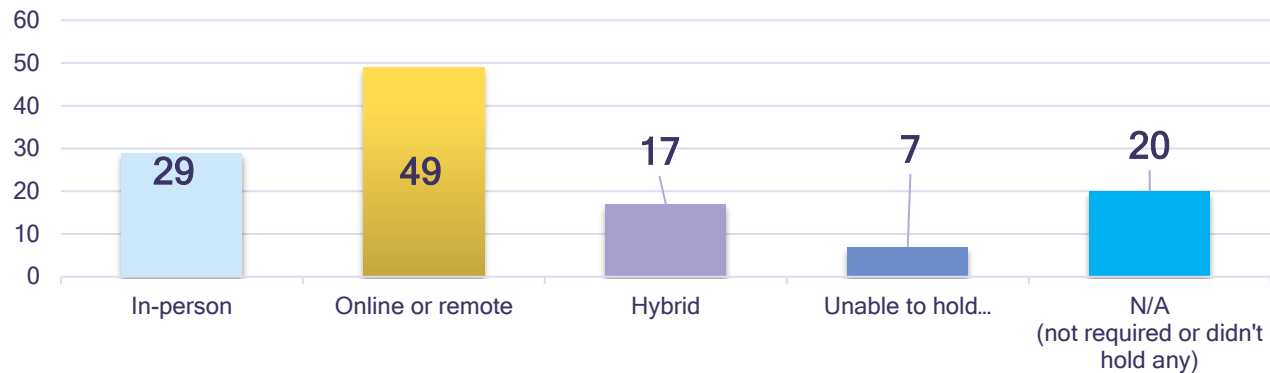
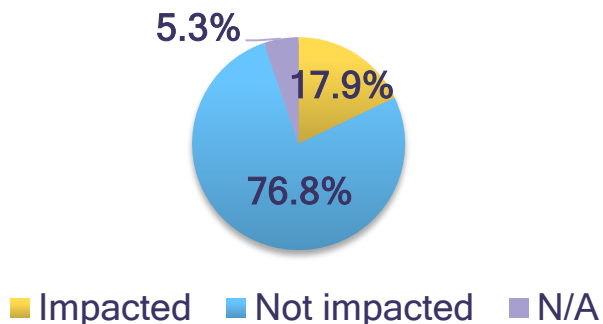


Figure 23

Operator License Maintenance

Prior to COVID-19 in Maine, drinking water technical training was primarily held in-person. 17.9% of respondents encountered difficulty maintaining their licenses because of the COVID-19 disruptions to these in-person offerings. Nevertheless, 85.3% of respondents took advantage of online and virtual training options.

Did COVID-19 impact license certification/renewals?



Have you taken advantage of virtual training?

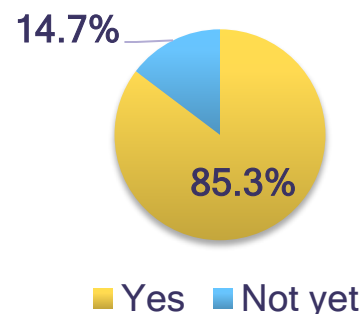


Figure 24

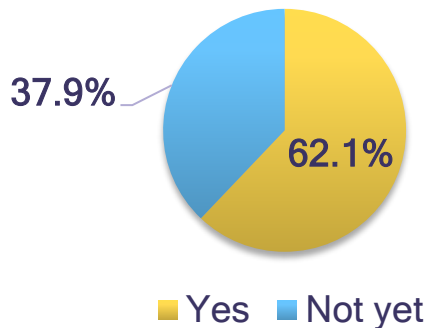
Looking to the Future

It is important to look to the future and plan for a possible resurgence of COVID-19 and other pandemics. Many respondents are already doing so, while even more plan to make updates and changes in the near future. CWSs and other industry professionals can work together to achieve higher levels of resiliency and emergency preparedness, but many still need assistance today.

Updated Pandemic Response Plans

Throughout the pandemic, 62.1% of respondents were able to update their ERPs and procedures/policies with relevant pandemic related contingencies. 37.9% had not been able to do so and 66.3% of respondents would like to make additional updates.

Have you updated/developed new pandemic ERPs?



Do you plan to make more updates/planning?

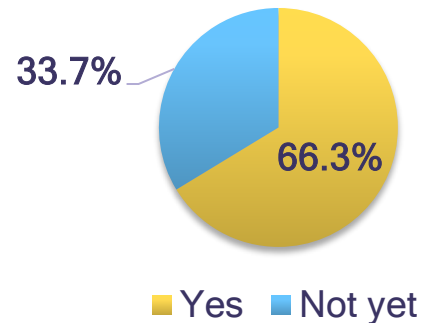


Figure 25

Of those indicating yes to the above questions, the respondents would like to address the following in their updates:

- Mutual aid,
- Business continuity planning,
- Transitioning from the pandemic to post pandemic,
- Safety of staff and customers,
- PPE and other safety equipment,
- Operational procedures,
- Scheduling and staffing,
- Cross training,
- Billing/finance procedures,
- Standard operating procedures,
- Chemical contingencies,
- Communications and interaction with the public/customers,
- Supply/stock inventories and contingencies, and
- Other related topics.

Level of Preparedness for Future Pandemics

At the beginning of the survey, respondents were asked whether they thought they were prepared for pandemics at the outset of COVID-19. 73.7% indicated “yes” and 26.3% indicated no. Many CWSs responded by updating their emergency plans and procedures. Such activities helped to increase

emergency preparedness and resiliency levels. Ultimately, 74.7% of respondents believed that their process of preparedness had improved their resiliency, response, recovery, while 25.3% did not believe they had experienced a change in preparedness.

What is your current level of pandemic preparedness?

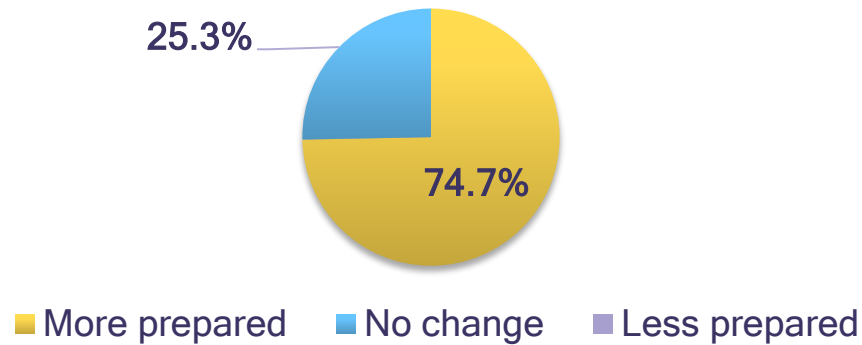


Figure 26

Current Needs of CWSs in Maine

Having encountered many difficulties and hardships, some of the respondents still require assistance in more than one capacity. The participants indicated that their top needs relate to understanding and navigating policy/regulatory changes, sourcing masks and disinfection supplies, and planning for/adjusting to the post pandemic situation and reopening. Figure 27 shows the needs identified from the survey respondents.

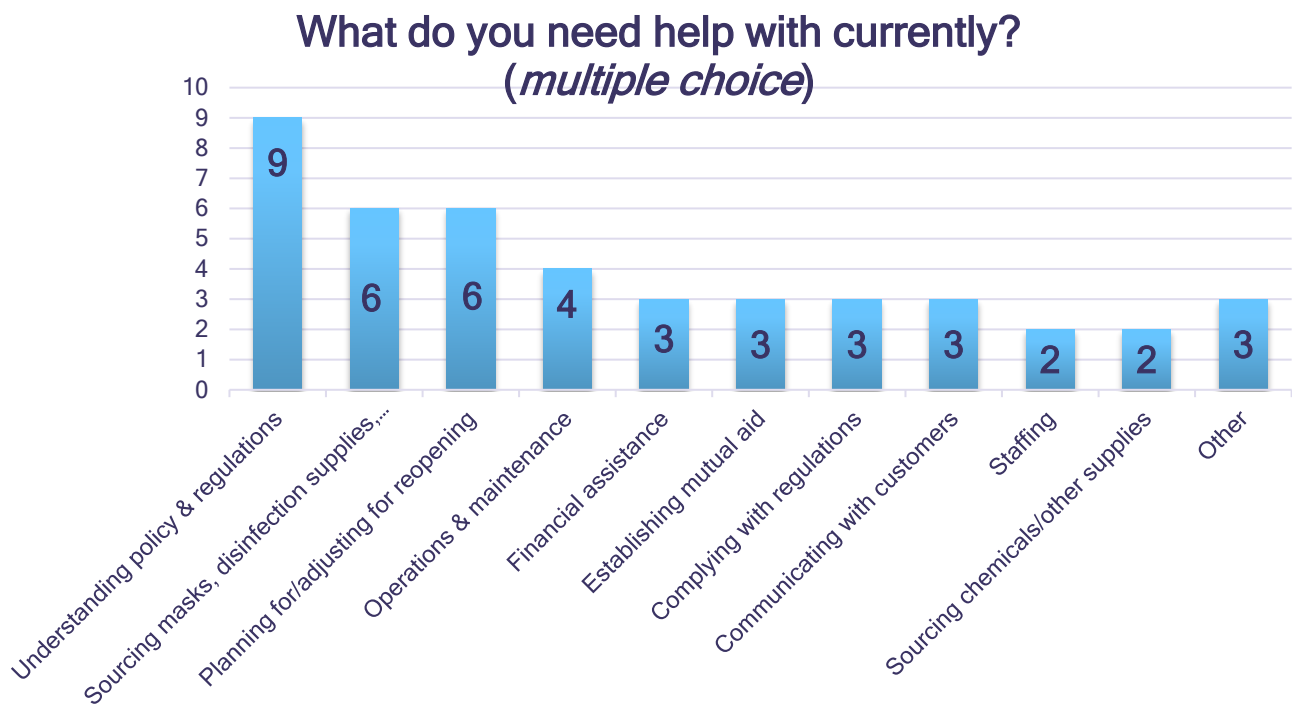


Figure 27

KEY TAKEAWAYS, FINDINGS, & SUGGESTIONS FOR IMPROVEMENT

Due to the vital role CWSs play in protecting public health, fire protection, and the community's economic stability, it is important to prepare for and maintain contingencies for emergencies, such as pandemics. CWSs should analyze their pandemic response and resiliency to date, while engaging in robust planning and preparation. This section below serves to aggregate and offer some critical suggestions for improvement.

Key Finding	Improvements & Takeaways
Roughly 2/3 of respondents should improve cross training for critical water system operations.	Incentivize ongoing cross training at the CWS for employees and offer educational/training opportunities.
21.1% do not have SOPs for all critical functions.	Establish SOPs for all critical functions and operations and test the application/use of SOPs with CWS staff and response partners (e.g., mutual aid).
31.6% experienced a decrease in revenue during COVID-19.	Include financial planning in ERPs and build contingency/emergency savings. Also, develop business continuity plans (BCP).
54.7% experienced an increase in non-payment of customer bills.	Offer additional options for customers to continuing making payments, provide links to potential financial aid, and include financial planning in ERPs/develop BCPs.
23.2% experienced a significant increase in the cost of critical supplies.	Evaluate opportunities to increase stocks of critical supplies and equipment to alleviate potentially high costs during emergencies, considering shelf life as appropriate (e.g., sodium hypochlorite). Also, review/update agreements with supply vendors and mutual aid partners, and reference the availability of critical supplies.
35.8% did not have emergency savings prior to the pandemic.	Include financial planning in ERPs and build contingency/emergency savings, while working with the PUC as applicable. Also, develop BCPs.
CWSs have paid ~\$9,000 extra (on average) during the pandemic to-date.	Include financial planning in ERPs and build contingency/emergency savings, while working with the PUC as applicable. Also, develop BCPs.

PPE and sterilizing products were difficult to obtain at times.	Stock and maintain critical levels of PPE and sterilizing products onsite. Also, identify mutual aid opportunities and establish contingencies with local emergency management. Review/update agreements with supply vendors.
10.5% experienced difficulty accessing critical chemicals and supplies.	Increase stocks of critical supplies and equipment and identify additional distributors/sources in ERPs. Also, identify mutual aid opportunities. Review/update agreements with supply vendors.
Only 8.4% of CWSs received concerns about water safety from customers.	Continue to maintain high levels of customer engagement and preemptively notify the public in emergencies, while maintaining transparency. Develop/update communication plans along with pre-scripted messages.
Business water usage decreased overall, and residential usage increased.	Include financial planning in ERPs and build contingency savings. Analyze the impact/trend on your system to prepare for usage changes.
The top 3 operational and maintenance difficulties reported were meter installation/servicing, preventative maintenance activities, and compliance sampling.	Establish protocol(s) to address difficulty entering homes/businesses during pandemics or other emergencies that interfere with planned or required activities. Develop SOPs for impacted preventative maintenance projects. In coordination with the DWP, establish compliance sampling contingencies (e.g., adjusting sampling plans).
Nearly 80% of respondents did not experience difficulty maintaining employee/staff safety during the pandemic.	Place emphasis on safety controls, procedures, and work practices, as well as federal, state, and relevant guidelines.
Over 95% of respondents did not experience difficulty having samples analyzed by outside laboratories during the pandemic.	This success recognizes the reliability of the services that state and private laboratories provide.
Credentialing and travelling for critical purposes did not present widespread or large difficulties overall.	Considering the curfews and travel restrictions early on during COVID-19, it is important to include credentialing with local/county emergency management in ERPs.

17.9% experienced difficulty maintaining water operator licenses.	Continue to utilize/explore online and virtual training offerings and offer inhouse opportunities for staff education.
Overall, respondents heavily relied on virtual and online services for training and meetings.	New mediums for training and meetings have been established and proven successful. Continue to incorporate the use of virtual options and prepare to use them in the future.
37.9% have not updated ERPs following the pandemic.	Expand ERPs to include pandemic planning, exercise, and update (at least annually).
66.3% would like to make additional updates to ERPs associated with the pandemic.	Analyze system specific response to COVID-19. Then, utilize templates, resources and participate in training on how to update ERPs for pandemic scenarios.

Figure 28