

# Communicating about Pharmaceutical and CEC Management in Recycled Water

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A report by WateReuse California's Communications  
Collaborative Group in support of Action 2.9 of the National  
Water Reuse Action Plan

**December 2021**

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## Introduction

In August 2021, the WaterReuse California's Communication Collaborative Group sent out a survey through state and national organizations such as the WaterReuse Association, Nation Association of Clean Water Agencies, Association of California Water Agencies, and others. The goal of the survey was to learn how water and/or wastewater agencies address contaminants of emerging concern (CECs) and pharmaceuticals when discussing water reuse with stakeholders and the public.

The survey is designed to support Action 2.9 of the National Water Reuse Action Plan, intended to help reduce the concentrations of pharmaceuticals in recycled water. The survey specifically supports milestone 6 in the action, which is to identify outreach and communication needs related to pharmaceuticals in recycled water, with an emphasis on the role of drug takeback programs and prevention of flushing of unwanted pharmaceuticals.

## Survey Results and Findings

140 respondents from most parts of the country completed the survey. Complete survey results are attached as an appendix to this report.

Of the 140 respondents, 99 (70.7%) communicate about recycled water. Those that don't indicated that it's either because their organization isn't involved with recycled water or because someone else has that responsibility. The data from the 99 respondents who communicate about recycled water was further analyzed. This report analyzes their responses and presents findings.

## About the Respondents

Demographic information about respondents was collected and includes their geographic area, organization, and role in organization.

## Geographic Area

Respondents represent 20 states in the United States, as shown in Table 1. Most respondents (roughly 71%) are from states with regions that are currently under extreme to exceptional drought conditions, according to the U.S. Drought Monitor. These states include California, Arizona, Nevada, Washington, Oregon, New Mexico, Utah and Colorado.

Table 1: Geographic representation of survey respondents.

## In what state or U.S. territory is your organization based?

Answered: 99 Skipped: 0

|                        |        |    |
|------------------------|--------|----|
| California             | 50.51% | 50 |
| Florida                | 9.09%  | 9  |
| Arizona                | 8.08%  | 8  |
| Georgia                | 5.05%  | 5  |
| Nevada                 | 4.04%  | 4  |
| Texas                  | 3.03%  | 3  |
| New Mexico             | 2.02%  | 2  |
| North Carolina         | 2.02%  | 2  |
| Oregon                 | 2.02%  | 2  |
| Virginia               | 2.02%  | 2  |
| Washington             | 2.02%  | 2  |
| Alabama                | 1.01%  | 1  |
| Colorado               | 1.01%  | 1  |
| Illinois               | 1.01%  | 1  |
| Iowa                   | 1.01%  | 1  |
| Maryland               | 1.01%  | 1  |
| Missouri               | 1.01%  | 1  |
| Ohio                   | 1.01%  | 1  |
| Pennsylvania           | 1.01%  | 1  |
| Utah                   | 1.01%  | 1  |
| Other (please specify) | 1.01%  | 1  |

## Agency and Service Types

Utilities and consultants supporting utilities are largely the ones communicating about recycled water. As shown on Table 2, of the 99 respondents who communicate about recycled water, 67% were from public water and/or wastewater utilities, 16% were from consulting agencies, 8% were from non-utility governmental organizations, 8% were from educational institutions, and 1% were in manufacturing/equipment distributors.

Table 2: Respondents' Organization Type.

What type of organization do you work for? Please select one.

Answered: 99 Skipped: 0

| ANSWER CHOICES                                       | RESPONSES |           |
|------------------------------------------------------|-----------|-----------|
| ▼ Public water and/or wastewater utility             | 66.67%    | 66        |
| ▼ Non-utility Government - local, state or federal   | 8.08%     | 8         |
| ▼ Consulting Firm                                    | 16.16%    | 16        |
| ▼ Private Industrial System                          | 0.00%     | 0         |
| ▼ Manufacturer/Distributor of Equipment and Supplies | 1.01%     | 1         |
| ▼ Educational Institution                            | 8.08%     | 8         |
| ▼ Retired                                            | 0.00%     | 0         |
| ▼ Other (please specify) <a href="#">Responses</a>   | 0.00%     | 0         |
| <b>TOTAL</b>                                         |           | <b>99</b> |

The respondents come from a range of organizations, from small organizations serving communities of 25,000 or less to large organizations serving over 3 million people. Of the respondents, 38% are from midsize agencies, followed by large agencies (26%) and small agencies (21%). This is shown in Table 3.

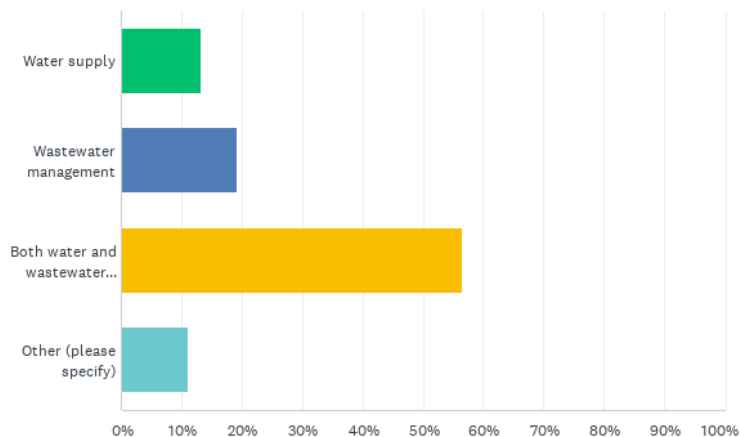
Table 3: Respondents' Organization Size.

| Size of Service Area    | Organization Size | Percentage of Respondents |
|-------------------------|-------------------|---------------------------|
| Less than 25,000        | small             | 21%                       |
| 25,000-99,000           |                   |                           |
| 100,000-499,000         | midsize           | 38%                       |
| 500,000 - 1.5 million   |                   |                           |
| 1.5 million - 3 million | large             | 26%                       |
| More than 3 million     |                   |                           |
| Not applicable          | N/A               | 14%                       |

Most respondents are involved with both wastewater and water supply services, as shown in Figure 1.

Figure 1: Organizational Activity

Q2 What category below best describes your organization's principal activity? Please select one.



#### Agency departments or staff roles

Survey respondents were asked to indicate their role in the organization and could indicate multiple roles that would apply to them. Those who are communicating about recycled water are mostly in leadership roles. As shown in Table 4, management and board members account for 41% of the respondents communicating about recycled water, while public facing communications or customer service staff account for 35%.

Table 4: Organizational role

What best describes your position within your organization? Please check all that apply.

Answered: 99 Skipped: 0

| ANSWER CHOICES                                                                          | RESPONSES       |    |
|-----------------------------------------------------------------------------------------|-----------------|----|
| ▼ Communications (Public Information Officer, Outreach, Marketing, etc.)                | 32.32%          | 32 |
| ▼ Customer Service                                                                      | 3.03%           | 3  |
| ▼ Executive (General Manager, Board Member, President, Owner, Director, etc.)           | 14.14%          | 14 |
| ▼ Management (Section Head, Department Head, etc.)                                      | 28.28%          | 28 |
| ▼ Operations (Operator, Service Representative, etc.)                                   | 3.03%           | 3  |
| ▼ Design, Engineering, Scientific or other Technical (Engineer, Chemist, Analyst, etc.) | 18.18%          | 18 |
| ▼ Regulatory/Legislative                                                                | 11.11%          | 11 |
| ▼ Professor                                                                             | 5.05%           | 5  |
| ▼ Other (please specify)                                                                | Responses 5.05% | 5  |
| Total Respondents: 99                                                                   |                 |    |

## Messaging

The survey sought to decipher the specific messaging from organizations communicating about CECs and/or pharmaceutical management in recycled water.

### Communicating about CECs and/or Pharmaceutical Management

As indicated in Table 5, 91 survey respondents answered the questions regarding messaging around CECs and/or pharmaceuticals. Most respondents use some messaging about CECs and/or pharmaceuticals in their communications. Only 10.99% do not. Interestingly, the survey revealed that there is a significant group of organizations (23%) that communicate about how the public can help, even though the agency itself doesn't address its own management or removal of CECs or pharmaceuticals.

Table 5: Communicating about CECs/Pharmaceuticals.

Do you address removal and/or management of chemicals of emerging concern (CECs) in your communications? CECs include pharmaceuticals, personal care products, industrial chemicals, and other chemical compounds. Please check the answer that best applies to your situation.

Answered: 91 Skipped: 8

| ANSWER CHOICES                                                                                                                                                                                                                      | RESPONSES |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----|
| Yes - we address how our organization manages/removes CECs including pharmaceuticals. We also discuss how customers and the public can help keep CECs out of the recycled water system.                                             | 37.36%    | 34 |
| Yes - we address how our organization manages/removes CECs including pharmaceuticals but we do not usually discuss how customers and the public can help keep CECs out of the recycled water system.                                | 18.68%    | 17 |
| Yes - we address how our organization manages/removes CECs but do not specifically address management/removal of pharmaceuticals. We also discuss how customers and the public can help keep CECs out of the recycled water system. | 0.00%     | 0  |
| Yes - we address how our organization manages/removes pharmaceuticals only. We also discuss how customers and the public can help keep pharmaceuticals out of the recycled water system.                                            | 4.40%     | 4  |
| Yes - we address how our organization manages/removes pharmaceuticals only. We do not discuss how customers and the public can help keep pharmaceuticals out of the recycled water system.                                          | 5.49%     | 5  |
| No - we do not address how our organization manages/removes CECs. However, we discuss how customers and the public can help keep CECs out of the recycled water system.                                                             | 23.08%    | 21 |
| No - we do not address how our organization manages/removes CECs. We also do not discuss how customers and the public can help keep CECs out of the recycled water system.                                                          | 10.99%    | 10 |
| TOTAL                                                                                                                                                                                                                               |           | 91 |

## Messages Used

The survey asked respondents to list what types of messaging they used with the option to select multiple messages. As shown in Table 6, 76 respondents checked off 185 answers, clearly indicating that communicators are using overlapping messaging. The majority have a focus on not flushing unused medications. Those messages are given in conjunction with takeback programs to empower the public with how to comply with the message.

Table 6: Messages used for pharmaceutical management

What messages do you use with the public to address pharmaceutical management in recycled water? Please check all that apply.

Answered: 76   Skipped: 23

| ANSWER CHOICES                                                          | RESPONSES |    |
|-------------------------------------------------------------------------|-----------|----|
| ▼ None of the above                                                     | 5.26%     | 4  |
| ▼ Describe how pharmaceuticals are removed during the treatment process | 56.58%    | 43 |
| ▼ Advise them not to flush unused medications                           | 75.00%    | 57 |
| ▼ Recommend use of medication takeback programs                         | 60.53%    | 46 |
| ▼ Provide disposal options for unused medications                       | 40.79%    | 31 |
| ▼ Other (please specify) <a href="#">Responses</a>                      | 5.26%     | 4  |
| Total Respondents: 76                                                   |           |    |

An analysis of the data reveals the messages are different between entities that provide wastewater services and those that are exclusively drinking water providers. Those that provide wastewater services are strong users of the “do not flush” message with 80% applying the message in their communications. This can be seen in Figure 2 on the next page, which shows data from only those that provide wastewater or water/wastewater services. This could be a conflicting message as we’re advising the public not to flush medications because wastewater treatment plants aren’t designed to remove them and they pass through to the environment, but then communicate that recycled water is safe.

In comparison, Figure 3 on the next page shows responses from those who exclusively work in water. Less than 50% use ‘do not flush’ messaging and over 60% describe how CECs/pharmaceuticals are removed in the treatment process.



Figure 2: Data only from those who provide wastewater services (either wastewater services exclusively or water/wastewater services)

Q12 What messages do you use with the public to address pharmaceutical management in recycled water? Please check all that apply.

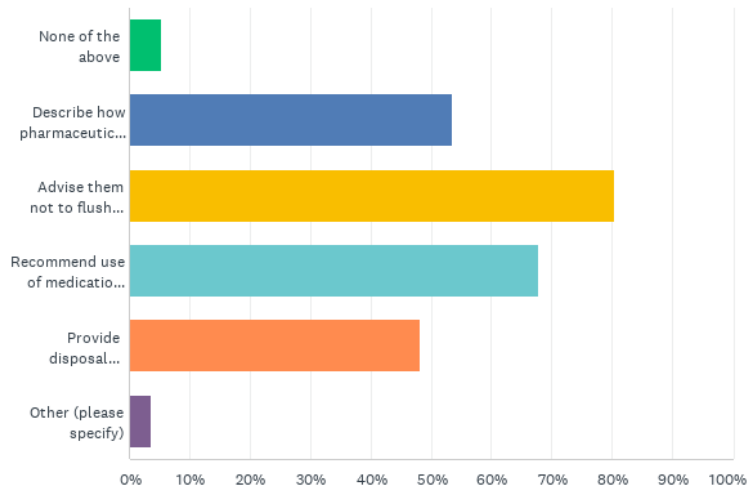
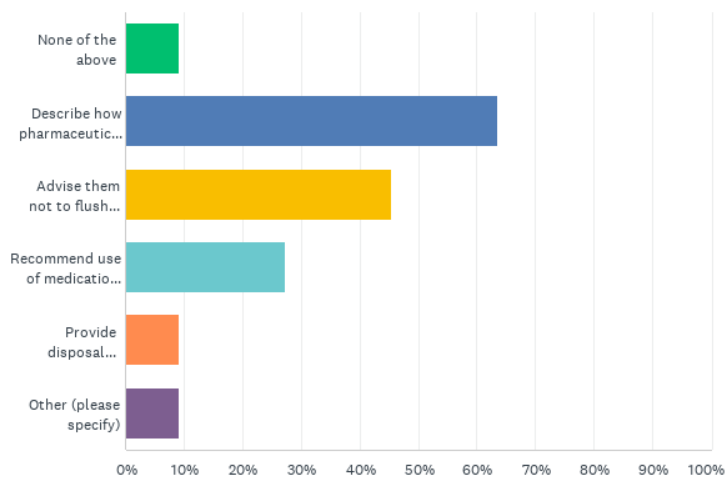


Figure 3: Data only from those who provide water services and no wastewater services

Q12 What messages do you use with the public to address pharmaceutical management in recycled water? Please check all that apply.



## Practical Examples of Messages Used

Survey respondents were invited to share collateral material their agencies use to communicate about treatment, or proper disposal, of CECs and pharmaceuticals. Figure 4 below includes screenshots that showcase some of the messaging and visuals used.

Several agencies use messages that educate the public about hazardous household materials, including pharmaceuticals, and how to dispose of them properly.

Figure 4: Examples of messaging and collateral used by survey respondents to keep pharmaceuticals out of wastewater system. Images are provided by clockwise): Metropolitan North Georgia Water Planning District, Des Moines Metropolitan Wastewater Reclamation Authority, and National Association of Clean Water Agencies (NACWA).

### What is a Household Hazardous Waste?

Household hazardous products are products used in and around the home that contain chemicals that are hazardous to human and animal health or the environment. By definition, household hazardous products are consumer products that are toxic, corrosive, reactive, flammable, or explosive. Labels on a hazardous household product will contain the words caution, warning, or danger. There are a number of adverse human health effects from exposure to these products. After a consumer has used these products, the remainder can easily become a household hazardous waste if not disposed of properly.

### Examples of Household Hazardous Products

- Cleaning agents & solvents
- Pesticides & fertilizers
- Polishes
- Batteries
- Anti-freeze
- Paints & paint thinners
- Motor oil
- Furniture strippers
- Lightbulbs
- Pharmaceuticals

### The Clean Water Campaign

The Clean Water Campaign is a collaborative multi-agency education and outreach effort coordinated by the Metropolitan North Georgia Water Planning District for the 15-county Metro Atlanta area. The Clean Water Campaign's mission is to build awareness of water quality problems and solutions.

Be the Solution to Stormwater Pollution!  
#stormwaterpollutionprevention

The Metropolitan North Georgia Water Planning District serves as the water planning organization for the greater metropolitan Atlanta area, which encompasses the following counties and their respective municipalities: Barrow, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Fulton, Forsyth, Gwinnett, Hall, Henry, Paulding and Rockdale.

Clean Water Campaign  
www.cleanwatercampaign.org  
@NorthGAWater

Special thanks to Cobb County Water System and Gwinnett County Water Resources for their assistance and input on this document.

### Reducing Household Hazardous Waste Protects You and the Environment

**CLEAN WATER CAMPAIGN**  
AWARENESS • EDUCATION • ACTION

### What can YOU do?

How you dispose of everyday household products can impact water quality as well as your health. Use these tips to help prevent household hazardous products from becoming household hazardous waste. Be the solution to water pollution!

In general,

- Buy only what you need. You'll prevent having to dispose of remaining waste.
- Never pour materials or products down the storm drain, drainage ditch, surface waters, toilets or sink drains.
- If you have leftover hazardous household products, recycle and dispose of products properly. The Center for Hard to Recycle Materials, [ivethrive.org/charity](http://ivethrive.org/charity), accepts many hazardous materials. You can also visit [warron.com](http://warron.com) to find local recycling centers near you or contact your local government for information on proper disposal and collection events.
- Purchase non-toxic or less toxic material and products for the job. Find free natural cleaner recipes online.
- Always follow the directions and guidelines listed on the product.
- Do not over-fertilize your lawn. Consider composting kitchen scraps to use as fertilizer.

### Home Improvement Projects

- Your local Lowe's, Home Depot and Batteries Plus Bulbs locations will recycle most household batteries and light bulbs. Never place these items in the garbage!
- Upcycle house paint with Global Paint for Charity. [globalpaint.org](http://globalpaint.org). If you can't upcycle, paint can be disposed of by mixing it with sawdust or cat litter, letting the paint dry then throw it in the trash.
- Store products in their original packaging in covered areas such as a shed or garage.

### Pharmaceuticals

- Drop them off at a collection site. Visit [cleanwatercampaign.org/roads](http://cleanwatercampaign.org/roads) for more information on drop-off locations.
- If you can't drop them at a collection site, mix medicine with dirt, kitty litter, or used coffee grounds and place container in the trash. Never dispose of meds by toilet or sink.

### Metro Atlanta Resources That Accept Hazardous Waste

**CHaRM**  
The Center for Hard to Recycle Materials accepts household hazardous waste and hard to recycle items from metro Atlanta landfills and water systems.  
[ivethrive.org/charity](http://ivethrive.org/charity)

**Global Paint for Charity**  
Global Paint for Charity upcycles unused post-consumer latex paint by redistributing it to underserved communities around the world.  
[globalpaint.org](http://globalpaint.org)

### Car Maintenance

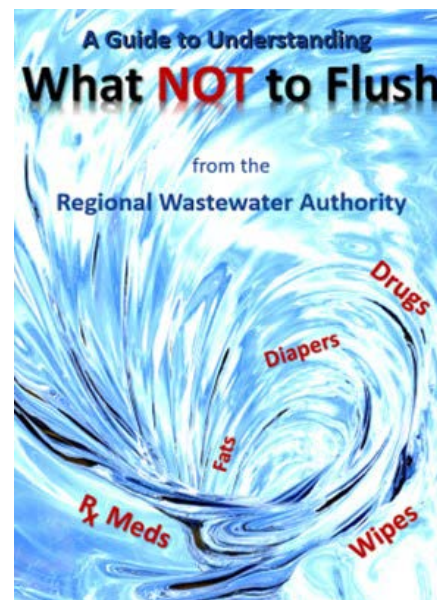
- Inspect and maintain your car regularly to prevent leaks of oil, coolant and other vehicle fluids.
- Never work on a vehicle in the street or near a stormwater drain or drainage ditch.
- Perform maintenance work on a flat concrete surface where spills can be easily cleaned up.
- Place a tarp, ground cloth, sheet of plywood, cardboard or newspaper under a vehicle to capture any leaks or spills.
- Aways use a funnel when pouring liquid to avoid spills.
- Use a drip pan under a vehicle when changing fluids, unscrewing filters and removing other parts that might leak.
- Immediately clean up vehicle fluid spills with rags or other absorbent materials such as kitty litter, sawdust or oil absorbent.
- Recycle used tires, motor oil and batteries at CHaRM. [ivethrive.org/charity](http://ivethrive.org/charity)



visit [www.nacwa.org/toilets](http://www.nacwa.org/toilets)

# TOILETS ARE NOT TRASHCANS™

Only Flush the 3 P's: Pee, Poop, & Toilet Paper



Other agencies focus on providing information about how CECs and pharmaceuticals are treated by water recycling systems as shown in Figure 5 below.

Figure 5: Example of messaging for pharmaceutical removal by treatment. Provided by the Water Replenishment District.



Interestingly, a WateReuse Research Foundation Newsletter focused on educating readers about the level of risk associated with the presence of CECs and pharmaceuticals. These articles and infographics, shown in Figure 6, acknowledge that emerging contaminants are an ongoing issue and add some perspective on the gravity of the issue through the lens of risk assessment. This empowers the reader to both understand the existing issue and come to their personal conclusions about the level of risk

involved. This is a nuanced approach but could provide the water industry with an opportunity to effectively communicate with the public about contaminants that are often not regulated by the EPA and don't yet have set MCLs.

Figure 5a: Examples of using risk assessment from project WRF-09-07, *Recycled Water: How Safe is It?* WRRF 2011. Reprinted with permission. © The Water Research Foundation.

## PPCPs: A Fact of Everyday Life

### Pharmaceuticals and Personal Care Products

While most organic and microbial material is removed from wastewater during the tertiary treatment process, studies have shown that trace concentrations of certain compounds, or chemicals, can be found in highly-treated recycled water. Many of the same compounds can also be found, in varying amounts, in drinking water and throughout the environment.

Some of these chemicals are grouped into

a category known as Pharmaceuticals and Personal Care Products (PPCPs). As their name implies, these compounds are ingredients that can be found in every day

products, such as soaps, cosmetics, household cleaners and over-the-counter or prescription medications. They enter the recycled water system with the products that get washed down our sinks, washing machines, dishwashers, and toilets.

The ability to detect these chemicals at very low levels has outpaced the ability to completely remove them from the environment. For example, a prescription antibiotic, sulfamethoxazole, has been found in recycled water at a concentration of 1.4 microgram per liter (ug/L). A

microgram per liter is one part per billion, or the equivalent of a single sugar cube in an Olympic size swimming pool.

The risk assessment study highlighted in this publication sought to determine how much of these residual chemicals we are exposed to under specific recycled water usage scenarios and to communicate the potential health risks in a meaningful way.



For instance, though no more than 1.4 ug/L of sulfamethoxazole is measured in most recycled water, the acceptable, or safe, concentration for a golfer on a course irrigated with reused water is 190,000 ug/L. In simpler terms, it

would take that golfer 1,100,000 years of playing twice a week to be exposed to the equivalent of a single dose of the antibiotic.

The study used measured levels of PPCPs from a report prepared by a science advisory panel for the California State Water Resources Control Board; the concentrations used in the study represent the 90th percentile of detected concentrations in both secondary- and tertiary-treated effluent, or among the highest measured levels from wastewater treatment plants in that state.

## Defining "Safe"

The idea of being "safe" is a relative concept. As individuals we make decisions about our own safety and the relative risks we are willing to take. As a society, we make collective decisions about safety and risk. These decisions weigh the risks against the benefits. Understanding those risks and benefits is fundamental to making sensible choices.

While scientists acknowledge that excess exposure to chemicals may pose health risks, our society as a whole sees benefit in using chemicals in controlled quantities to improve our lives. Therefore, "safe" or "acceptable" exposure levels are established for compounds that we come into contact with every day.



Figure 6b: Example of using risk assessment from project WRF-09-07, *Recycled Water: How Safe is It?* WRRF 2011. Reprinted with permission. © The Water Research Foundation.

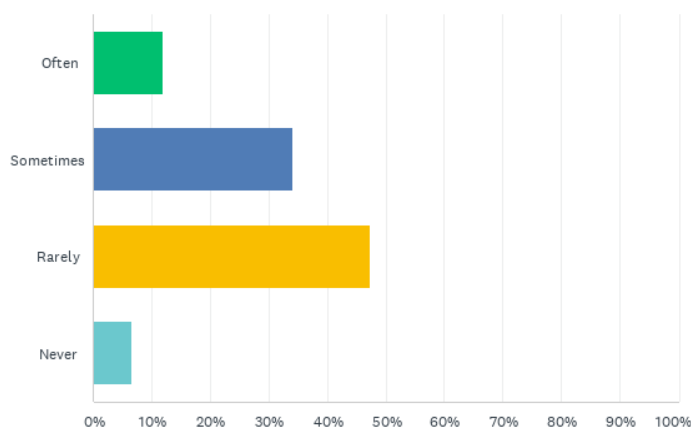


## Purpose of Communications

The survey sought to understand when and why organizations may be communicating about pharmaceutical management in recycled water. Out of 99 survey respondents who answered yes to communicating about CECs and/or pharmaceuticals in recycled water, 76 answered a question about how frequently they are hearing questions or concerns from the public about this topic. As indicated in Figure 7, their responses show an almost even split, with around 50% being asked sometimes or often, and the other half being asked rarely or never. Many (47%) responded that they are rarely asked about the topic. This suggests that there has not been a demand push from the public to understand how these contaminants affect their water supply.

Figure 6: Frequency of questions about pharmaceuticals in recycled water.

Q16 How frequently do you get questions or hear concerns about pharmaceuticals in recycled water? Please select one answer that best describes your experience.



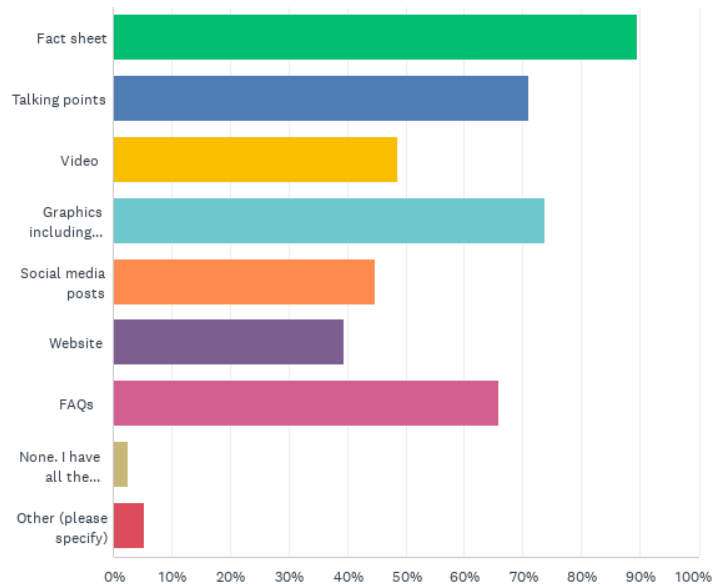
## Respondents' Confidence in Subject and Need for Resources

Of the 76 people who communicate about CECs and pharmaceuticals in recycled water, only 9.2% of people are not confident in speaking about pharmaceuticals. The remaining 91.8% are somewhat confident, confident or very confident. Despite this confidence, survey respondents felt there was a need for additional information and resources.

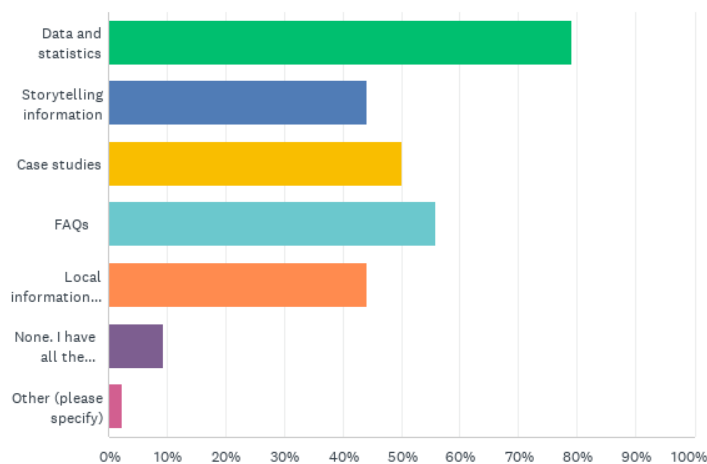
As shown in Figures 8 and 9 on the next page, over 90% of respondents indicated a need for additional collateral and informational materials, with 97% indicating interest in collateral resources. 89.5% of respondents indicated they would like a fact sheet. 79% wanted data and statistics for informational resources, especially information backed by scientific studies. Additional resources identified are shown in the charts below. Respondents prefer to receive these resources in a format that is customizable. Only 9% preferred to have the information ready to use.

Figure 7 and 9: Respondents interest in collateral and informational resources for pharmaceutical management in recycled water

**Q18** What additional collateral resources would be helpful to you in your communications in addressing CECs including pharmaceuticals in recycled water? Please check all that apply.



**Q19** What additional informational resources would be helpful to you in your communications in addressing CECs including pharmaceuticals in recycled water? Please check all that apply.



A couple of comments included by survey respondents emphasize the need for these resources:

“Thank you for conducting this survey, we work in several communities around the country and I can tell you new tools regarding this topic are severely needed and have been for quite some time. The lack of this information is effecting leadership decisions and public acceptance in communities struggling to evaluate potable reuse water supply alternatives.”

“It would also be helpful to have studies cited that address the concern of pharmaceuticals and CECs in recycled & purified water. In some focus groups we conducted earlier this year, many participants said they would feel more comfortable about the safety of purified water if they knew there were scientific and academic studies backing up the claims.”

## Conclusion and Recommendations

Results from the survey led to the following conclusions and recommendations:

- The survey revealed that those communicating about CECs and pharmaceuticals in water are mostly agencies that are involved with both wastewater and water supply, and that are involved with multiple aspects of the recycled water system. Many of these agencies are in drought-stricken areas within the United States. This could suggest that the audience for these communications has a base understanding of importance of recycled water to their region’s water portfolio.
- Most recycled water communicators are in leadership positions, followed by those in communications positions. This would suggest that any new materials developed to assist these communicators are based in science, however, contain less technical or jargon-laden language than communications that would come from operators, engineers, or regulators.
- The survey revealed that there are many agencies who do not communicate directly about treatment or removal of CECs or pharmaceuticals; however, they do communicate about proper disposal of these contaminants. This suggests an overall message of consumer responsibility and care doesn’t need to be tied to water treatment explanations. It could also mean that consumers don’t always understand how the topics of improper disposal and water treatment are related.
- There are also some agencies, especially agencies that exclusively provide drinking water services, who only communicate about CEC and pharmaceutical treatment and omit how the public can help prevent contamination. These agencies should be encouraged to incorporate messaging about proper disposal into their materials to promote public empowerment, keep water sources as clean as possible, and align messaging across the water/wastewater sector.
- The survey results suggest that CECs and pharmaceuticals don’t present a pressing and demanding concern from most of the public. Nonetheless, since new emerging contaminants continue to be revealed, it’s incumbent upon the water industry to build a communications platform that address these issues, for one day a new contaminant may capture widespread attention (for example PFAS). The WaterReuse Research Foundation materials on empowering the public with their own risk assessment tools could be a good place for agencies to start when developing a communications plan about CECs and pharmaceuticals in the water supply.
- Since template information and materials regarding CECs and pharmaceuticals is in high demand, creating customizable materials will likely increase outreach efforts. These materials should be available in a centralized location where they can be downloadable. The flush3p.org website may be an appropriate location.

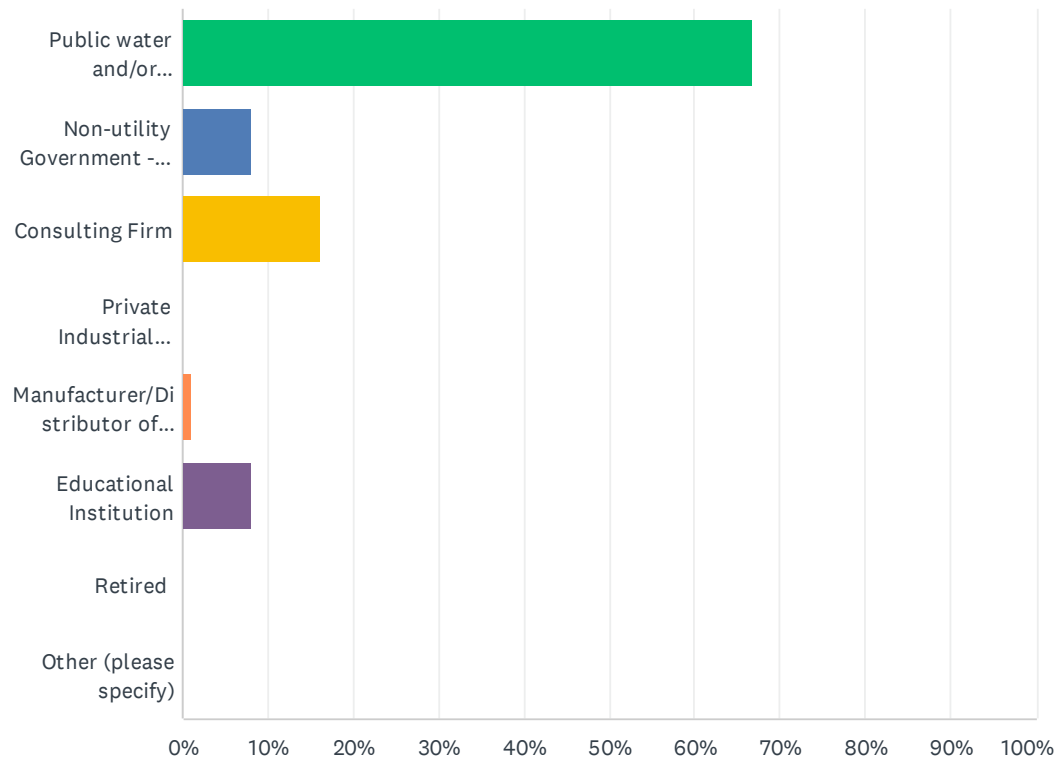


- As many recycled water professionals only communicate about CECs and pharmaceuticals when asked, the materials produced should be reference materials for them and shared with the public and other audiences as needed. Messaging for pharmaceutical and CEC management does not need to be the core message and could be a secondary message if applicable questions arise.
- Since the survey noted that information will be most credible if it comes with scientific support, the resources provided should reference and include input from the scientific community.

# Appendix

Q1 What type of organization do you work for? Please select one.

Answered: 99    Skipped: 0

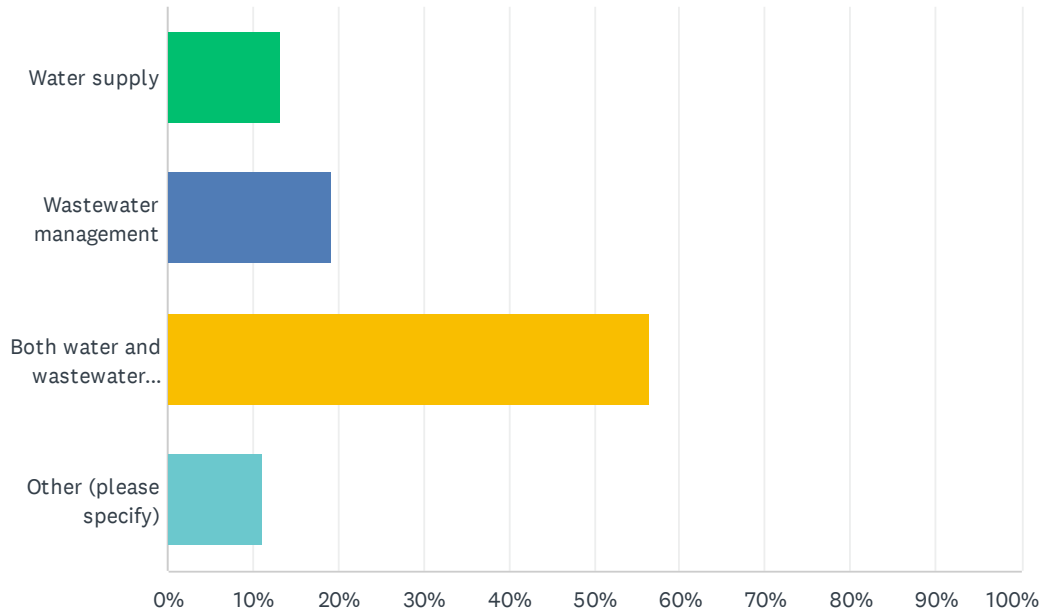


| ANSWER CHOICES                                     |  | RESPONSES |    |
|----------------------------------------------------|--|-----------|----|
| Public water and/or wastewater utility             |  | 66.67%    | 66 |
| Non-utility Government - local, state or federal   |  | 8.08%     | 8  |
| Consulting Firm                                    |  | 16.16%    | 16 |
| Private Industrial System                          |  | 0.00%     | 0  |
| Manufacturer/Distributor of Equipment and Supplies |  | 1.01%     | 1  |
| Educational Institution                            |  | 8.08%     | 8  |
| Retired                                            |  | 0.00%     | 0  |
| Other (please specify)                             |  | 0.00%     | 0  |
| TOTAL                                              |  |           | 99 |

| # | OTHER (PLEASE SPECIFY)  | DATE |
|---|-------------------------|------|
|   | There are no responses. |      |

## Q2 What category below best describes your organization's principal activity? Please select one.

Answered: 99 Skipped: 0



| ANSWER CHOICES                     | RESPONSES |           |
|------------------------------------|-----------|-----------|
| Water supply                       | 13.13%    | 13        |
| Wastewater management              | 19.19%    | 19        |
| Both water and wastewater services | 56.57%    | 56        |
| Other (please specify)             | 11.11%    | 11        |
| <b>TOTAL</b>                       |           | <b>99</b> |

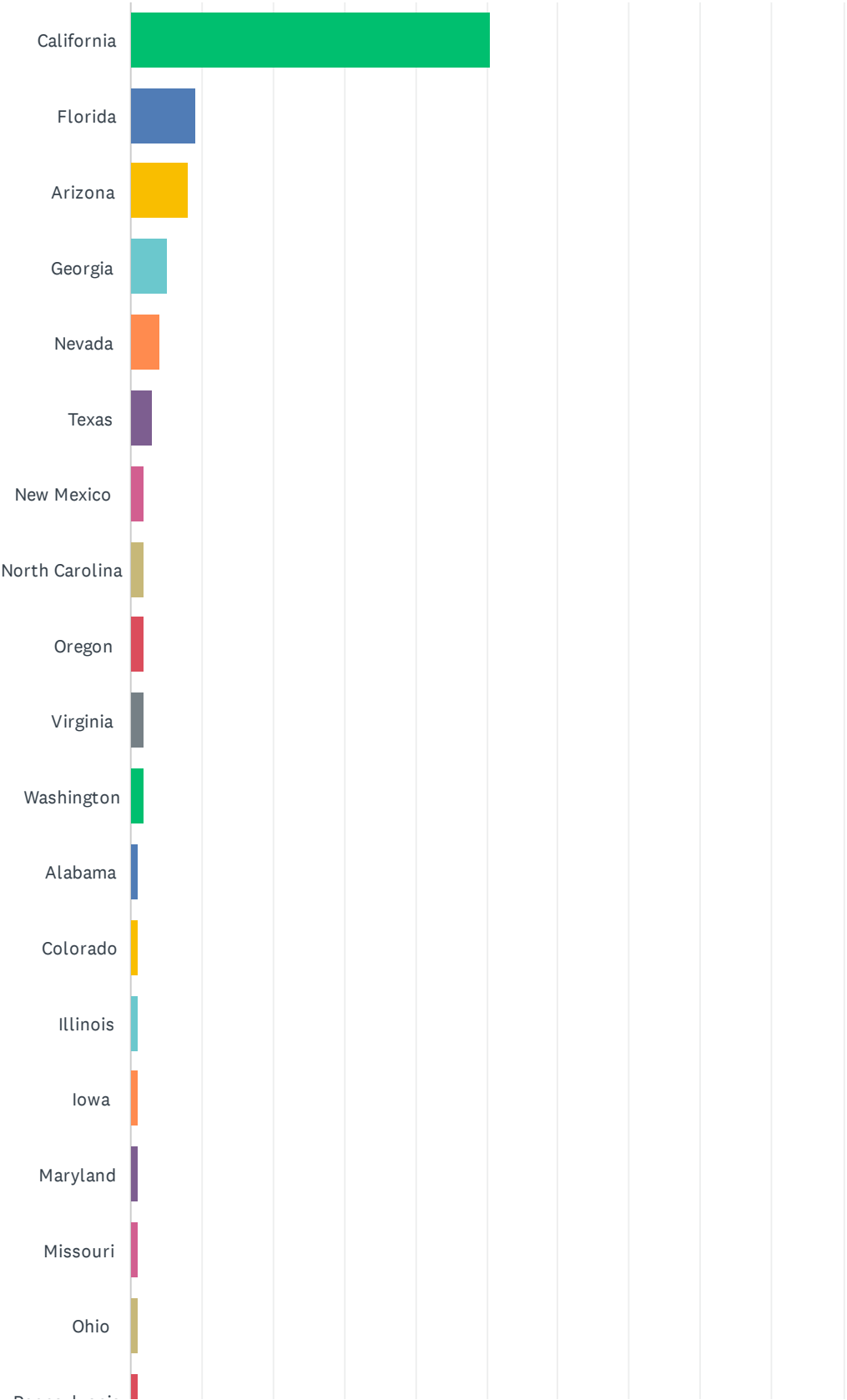
| #  | OTHER (PLEASE SPECIFY)                                                      | DATE               |
|----|-----------------------------------------------------------------------------|--------------------|
| 1  | Communications regarding both water & wastewater                            | 8/22/2021 12:48 PM |
| 2  | Air, water and waste management                                             | 8/18/2021 3:59 PM  |
| 3  | Higher education (specifically, education about water resources in my case) | 8/17/2021 9:36 AM  |
| 4  | public health regulation                                                    | 8/17/2021 6:42 AM  |
| 5  | Research Funding                                                            | 8/16/2021 8:01 PM  |
| 6  | Groundwater replenishment                                                   | 8/9/2021 8:39 AM   |
| 7  | Research on water and wastewater treatment                                  | 8/6/2021 5:02 PM   |
| 8  | research, outreach, education                                               | 8/6/2021 12:39 PM  |
| 9  | water supply & flood control                                                | 8/3/2021 11:08 AM  |
| 10 | groundwater                                                                 | 7/27/2021 5:04 PM  |

|    |                                             |                   |
|----|---------------------------------------------|-------------------|
| 11 | Regional integrated water resource planning | 7/27/2021 1:57 PM |
|----|---------------------------------------------|-------------------|

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Q3 In what state or U.S. territory is your organization based?

Answered: 99 Skipped: 0



Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water





Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water



# Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

| ANSWER CHOICES            | RESPONSES |    |
|---------------------------|-----------|----|
| California                | 50.51%    | 50 |
| Florida                   | 9.09%     | 9  |
| Arizona                   | 8.08%     | 8  |
| Georgia                   | 5.05%     | 5  |
| Nevada                    | 4.04%     | 4  |
| Texas                     | 3.03%     | 3  |
| New Mexico                | 2.02%     | 2  |
| North Carolina            | 2.02%     | 2  |
| Oregon                    | 2.02%     | 2  |
| Virginia                  | 2.02%     | 2  |
| Washington                | 2.02%     | 2  |
| Alabama                   | 1.01%     | 1  |
| Colorado                  | 1.01%     | 1  |
| Illinois                  | 1.01%     | 1  |
| Iowa                      | 1.01%     | 1  |
| Maryland                  | 1.01%     | 1  |
| Missouri                  | 1.01%     | 1  |
| Ohio                      | 1.01%     | 1  |
| Pennsylvania              | 1.01%     | 1  |
| Utah                      | 1.01%     | 1  |
| Other (please specify)    | 1.01%     | 1  |
| Alaska                    | 0.00%     | 0  |
| American Samoa            | 0.00%     | 0  |
| Arkansas                  | 0.00%     | 0  |
| Connecticut               | 0.00%     | 0  |
| Delaware                  | 0.00%     | 0  |
| District of Columbia (DC) | 0.00%     | 0  |
| Guam                      | 0.00%     | 0  |
| Hawaii                    | 0.00%     | 0  |
| Idaho                     | 0.00%     | 0  |
| Indiana                   | 0.00%     | 0  |
| Kansas                    | 0.00%     | 0  |

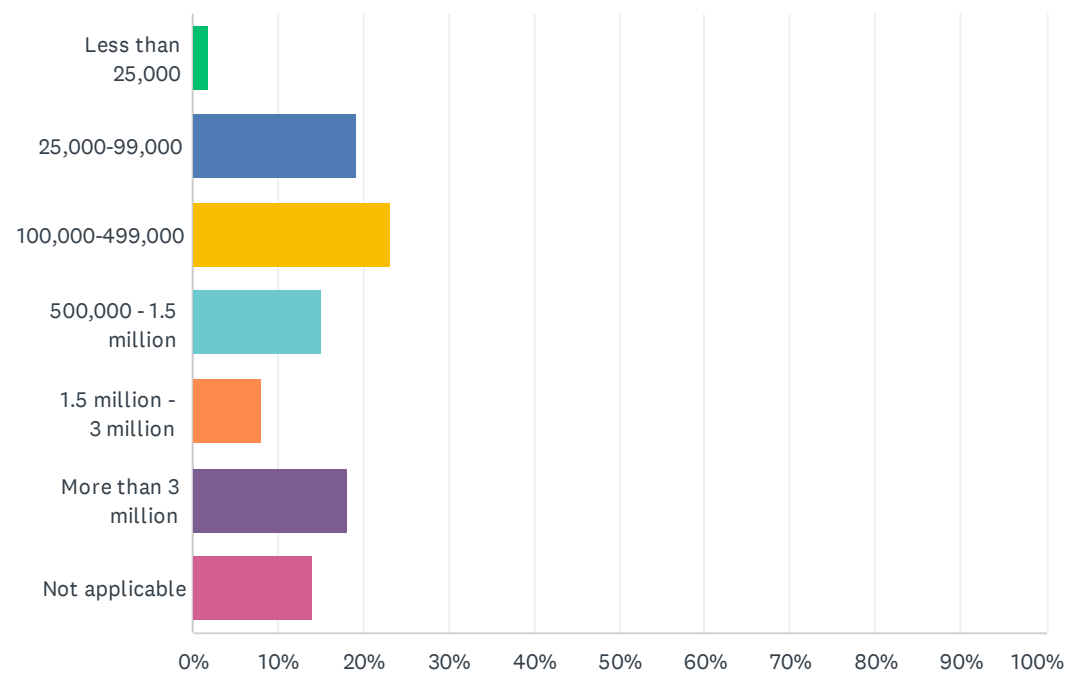
## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|                           |       |           |
|---------------------------|-------|-----------|
| Kentucky                  | 0.00% | 0         |
| Louisiana                 | 0.00% | 0         |
| Maine                     | 0.00% | 0         |
| Massachusetts             | 0.00% | 0         |
| Michigan                  | 0.00% | 0         |
| Minnesota                 | 0.00% | 0         |
| Mississippi               | 0.00% | 0         |
| Montana                   | 0.00% | 0         |
| Nebraska                  | 0.00% | 0         |
| New Hampshire             | 0.00% | 0         |
| New Jersey                | 0.00% | 0         |
| New York                  | 0.00% | 0         |
| North Dakota              | 0.00% | 0         |
| Northern Marianas Islands | 0.00% | 0         |
| Oklahoma                  | 0.00% | 0         |
| Puerto Rico               | 0.00% | 0         |
| Rhode Island              | 0.00% | 0         |
| South Carolina            | 0.00% | 0         |
| South Dakota              | 0.00% | 0         |
| Tennessee                 | 0.00% | 0         |
| Vermont                   | 0.00% | 0         |
| Virgin Islands            | 0.00% | 0         |
| West Virginia             | 0.00% | 0         |
| Wisconsin                 | 0.00% | 0         |
| Wyoming                   | 0.00% | 0         |
| <b>TOTAL</b>              |       | <b>99</b> |

| # | OTHER (PLEASE SPECIFY) | DATE               |
|---|------------------------|--------------------|
| 1 | Global                 | 8/30/2021 11:22 AM |

Q4 What is the population of your organization's service area?

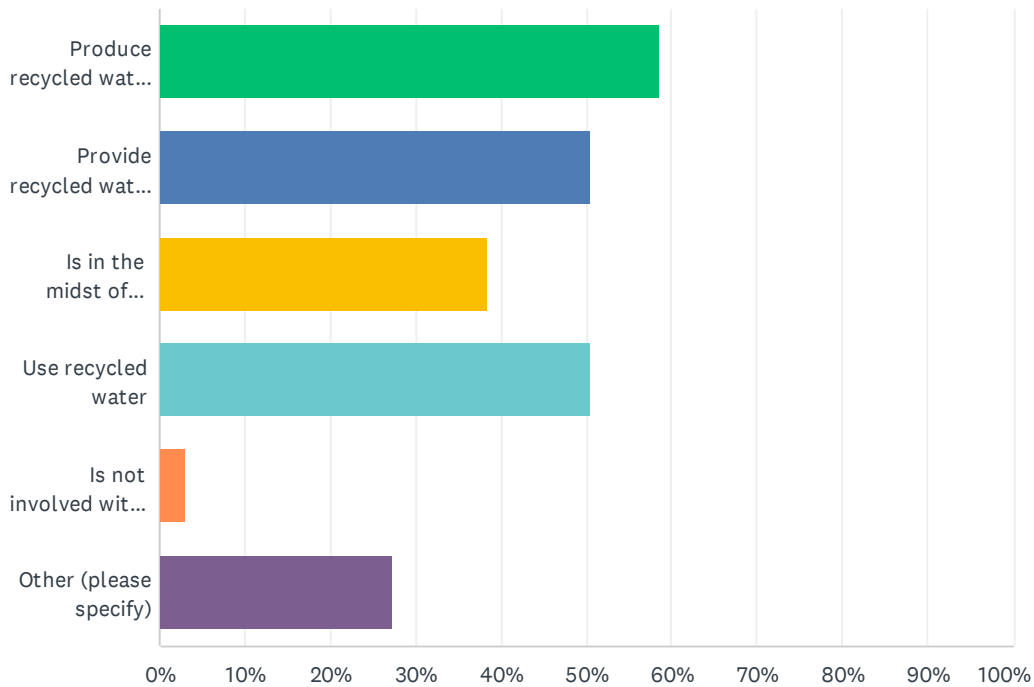
Answered: 99    Skipped: 0



| ANSWER CHOICES          | RESPONSES |    |
|-------------------------|-----------|----|
| Less than 25,000        | 2.02%     | 2  |
| 25,000-99,000           | 19.19%    | 19 |
| 100,000-499,000         | 23.23%    | 23 |
| 500,000 - 1.5 million   | 15.15%    | 15 |
| 1.5 million - 3 million | 8.08%     | 8  |
| More than 3 million     | 18.18%    | 18 |
| Not applicable          | 14.14%    | 14 |
| TOTAL                   |           | 99 |

## Q5 Please check all the items below that apply to your organization.

Answered: 99   Skipped: 0



| ANSWER CHOICES                                                       | RESPONSES |    |
|----------------------------------------------------------------------|-----------|----|
| Produce recycled water through treatment/purification system         | 58.59%    | 58 |
| Provide recycled water to customers                                  | 50.51%    | 50 |
| Is in the midst of planning or implementing a recycled water project | 38.38%    | 38 |
| Use recycled water                                                   | 50.51%    | 50 |
| Is not involved with recycled water                                  | 3.03%     | 3  |
| Other (please specify)                                               | 27.27%    | 27 |
| Total Respondents: 99                                                |           |    |

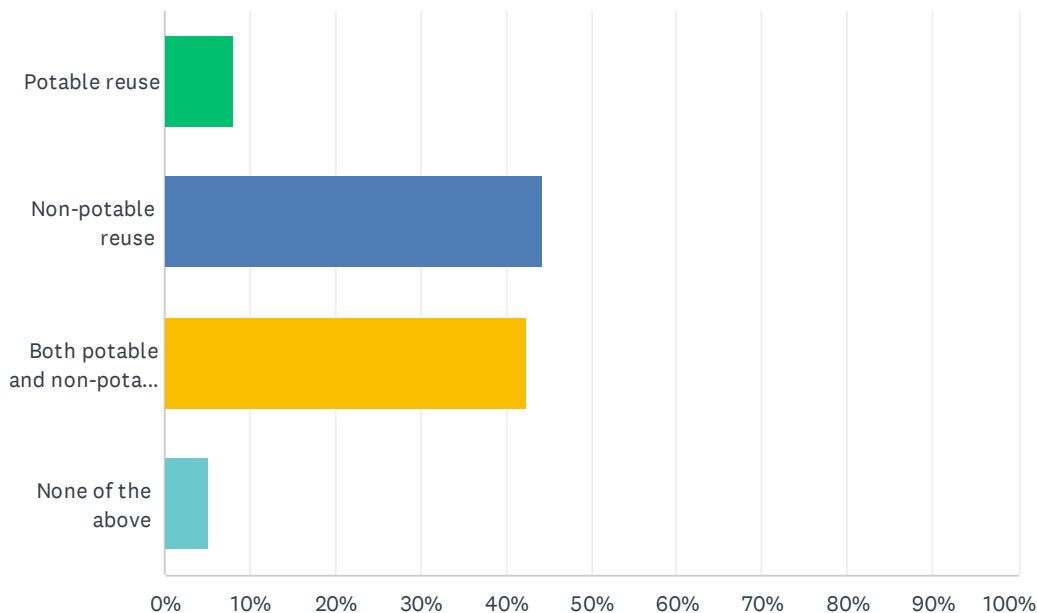
| # | OTHER (PLEASE SPECIFY)                                                                 | DATE               |
|---|----------------------------------------------------------------------------------------|--------------------|
| 1 | Plan, design, construct and operate recycled water facilities                          | 8/30/2021 11:22 AM |
| 2 | Regulate                                                                               | 8/30/2021 10:38 AM |
| 3 | Communicate regarding recycled water for multiple agencies.                            | 8/22/2021 12:48 PM |
| 4 | Oregon Water Resources Department                                                      | 8/19/2021 3:15 PM  |
| 5 | Only use process water at WWTP for tank cleaning.                                      | 8/19/2021 8:57 AM  |
| 6 | 90% of discharged treated water is removed/recycled downstream for agriculture fields. | 8/19/2021 7:34 AM  |
| 7 | Regulatory                                                                             | 8/18/2021 3:59 PM  |
| 8 | I do research on water reuse, including public perceptions about things like CECs      | 8/17/2021 9:36 AM  |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                                                                                               |                    |
|----|-----------------------------------------------------------------------------------------------|--------------------|
| 9  | provide services to organizations that produce and provide recycled water                     | 8/17/2021 9:29 AM  |
| 10 | state health dept                                                                             | 8/17/2021 6:42 AM  |
| 11 | Fund Research to support the use of recycled water for agriculture                            | 8/16/2021 8:01 PM  |
| 12 | Planning a potable reuse project                                                              | 8/16/2021 5:48 PM  |
| 13 | Research                                                                                      | 8/16/2021 5:21 PM  |
| 14 | Assist agencies that provide these services to customers                                      | 8/16/2021 5:18 PM  |
| 15 | deliver wastewater to county to purify and percolate back into the ground water               | 8/16/2021 8:35 AM  |
| 16 | provide education services related to recycled water -- particularly purified recycled water. | 8/9/2021 2:24 PM   |
| 17 | provides information about recycled water                                                     | 8/6/2021 12:39 PM  |
| 18 | IPR                                                                                           | 8/4/2021 9:35 PM   |
| 19 | We consult for recycled water producers                                                       | 8/4/2021 8:28 PM   |
| 20 | design of treatment/purification systems for potable reuse                                    | 8/4/2021 1:05 PM   |
| 21 | Communitcations re water/ww resources                                                         | 8/4/2021 11:21 AM  |
| 22 | Water treatment                                                                               | 8/3/2021 2:26 PM   |
| 23 | research on reuse                                                                             | 7/29/2021 4:14 PM  |
| 24 | consulting services                                                                           | 7/29/2021 11:44 AM |
| 25 | Non-potable recycled water provided to institutional customers for irrigation use only.       | 7/29/2021 8:36 AM  |
| 26 | In planning/design/construction for potable reuse program.                                    | 7/28/2021 9:20 AM  |
| 27 | We develop policy to promote the regional benefits of reclaimed water.                        | 7/27/2021 1:57 PM  |

## Q6 Please indicate the type of reuse your organization is involved with. Please check one answer.

Answered: 99 Skipped: 0



| ANSWER CHOICES                     | RESPONSES |           |
|------------------------------------|-----------|-----------|
| Potable reuse                      | 8.08%     | 8         |
| Non-potable reuse                  | 44.44%    | 44        |
| Both potable and non-potable reuse | 42.42%    | 42        |
| None of the above                  | 5.05%     | 5         |
| <b>TOTAL</b>                       |           | <b>99</b> |

| #  | PLEASE PROVIDE ANY ADDITIONAL INFORMATION, IF APPLICABLE.                                                                                                                      | DATE              |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1  | Centralized and decentralized scopes                                                                                                                                           | 8/26/2021 3:31 PM |
| 2  | Only use process water at WWTP for tank cleaning.                                                                                                                              | 8/19/2021 8:57 AM |
| 3  | my research mostly focuses on potable reuse                                                                                                                                    | 8/17/2021 9:36 AM |
| 4  | We have been providing tertiary-treated recycled water from our wastewater facility for decades. We just began our indirect potable reuse pilot/demonstration project in 2020. | 8/16/2021 7:00 PM |
| 5  | Reclaimed water for irrigation and DPR feasibility pilot study                                                                                                                 | 8/13/2021 8:43 AM |
| 6  | Direct reuse for groundwater recharge                                                                                                                                          | 8/10/2021 2:41 PM |
| 7  | Worked towards FL Potable Reuse Legislation                                                                                                                                    | 8/10/2021 9:05 AM |
| 8  | Also participate in OCWD/OCSD GWRS                                                                                                                                             | 8/9/2021 10:51 AM |
| 9  | Current project underway for potable reuse                                                                                                                                     | 8/4/2021 12:24 PM |
| 10 | mostly non-potable; with indirect potable via groundwater augmentation                                                                                                         | 8/4/2021 8:59 AM  |

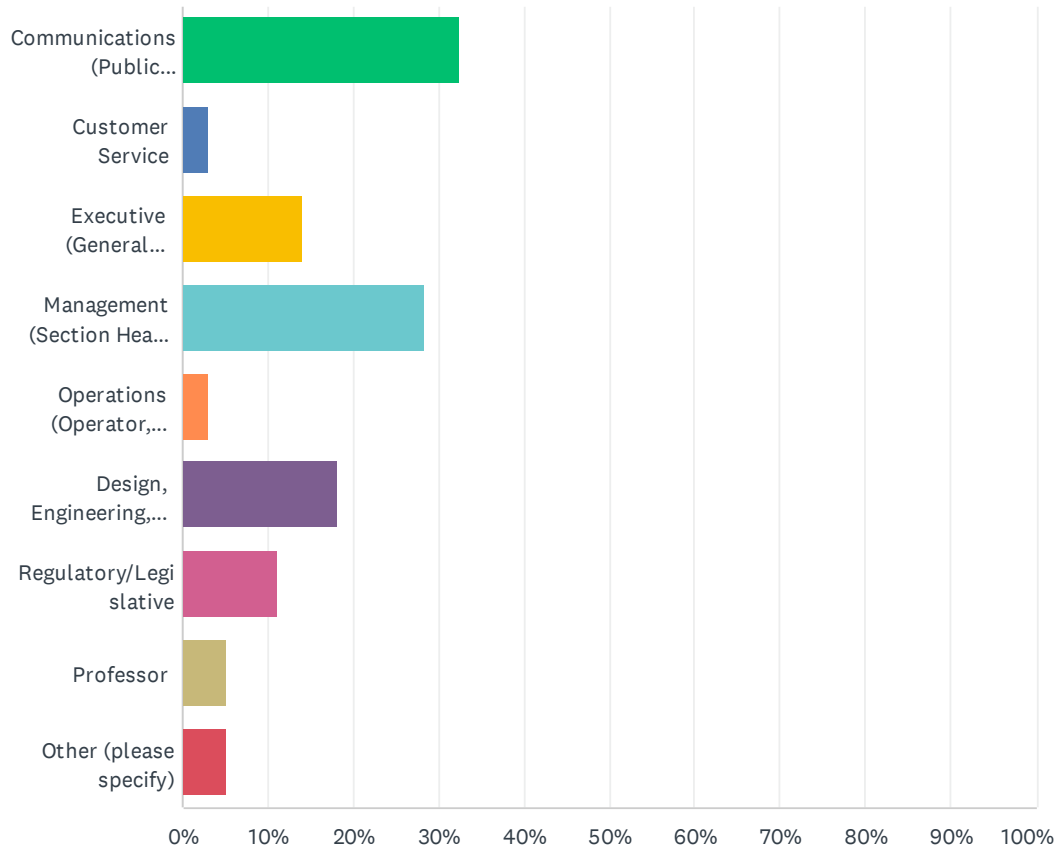
## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                                                                                                                                          |                    |
|----|------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 11 | 0We advise utilities that are planning for or already have recycled water projects: non-potable and/or advanced purified water (IPR/DPR) | 7/28/2021 11:54 AM |
| 12 | Will be creating indirect potable reuse soon                                                                                             | 7/26/2021 2:03 PM  |



## Q7 What best describes your position within your organization? Please check all that apply.

Answered: 99 Skipped: 0



| ANSWER CHOICES                                                                        |  | RESPONSES |    |
|---------------------------------------------------------------------------------------|--|-----------|----|
| Communications (Public Information Officer, Outreach, Marketing, etc.)                |  | 32.32%    | 32 |
| Customer Service                                                                      |  | 3.03%     | 3  |
| Executive (General Manager, Board Member, President, Owner, Director, etc.)           |  | 14.14%    | 14 |
| Management (Section Head, Department Head, etc.)                                      |  | 28.28%    | 28 |
| Operations (Operator, Service Representative, etc.)                                   |  | 3.03%     | 3  |
| Design, Engineering, Scientific or other Technical (Engineer, Chemist, Analyst, etc.) |  | 18.18%    | 18 |
| Regulatory/Legislative                                                                |  | 11.11%    | 11 |
| Professor                                                                             |  | 5.05%     | 5  |
| Other (please specify)                                                                |  | 5.05%     | 5  |
| Total Respondents: 99                                                                 |  |           |    |

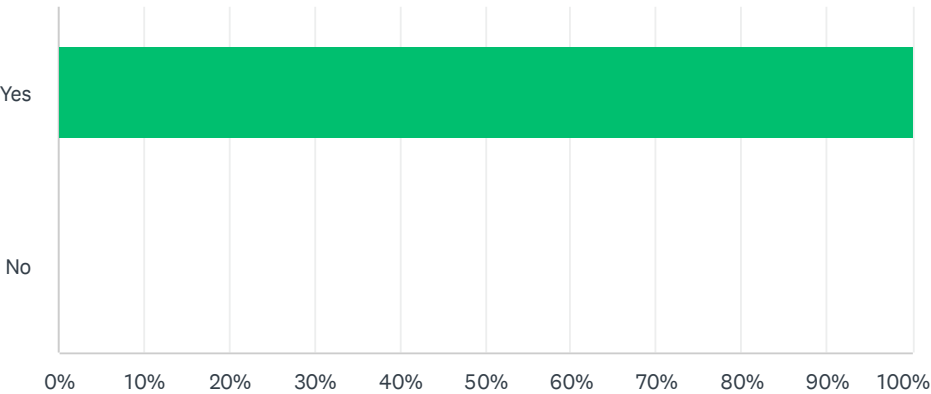
| # | OTHER (PLEASE SPECIFY) | DATE |
|---|------------------------|------|
|---|------------------------|------|

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|   |                                                 |                   |
|---|-------------------------------------------------|-------------------|
| 1 | PhD student                                     | 8/16/2021 5:21 PM |
| 2 | Planning/sustainability                         | 8/9/2021 10:44 AM |
| 3 | consultant                                      | 8/6/2021 12:39 PM |
| 4 | Private consultants re education and engagement | 8/4/2021 11:21 AM |
| 5 | PhD candidate                                   | 8/3/2021 2:26 PM  |

Q8 Do you communicate about recycled water with the public in your current position?

Answered: 99 Skipped: 0



| ANSWER CHOICES | RESPONSES |    |
|----------------|-----------|----|
| Yes            | 100.00%   | 99 |
| No             | 0.00%     | 0  |
| TOTAL          |           | 99 |

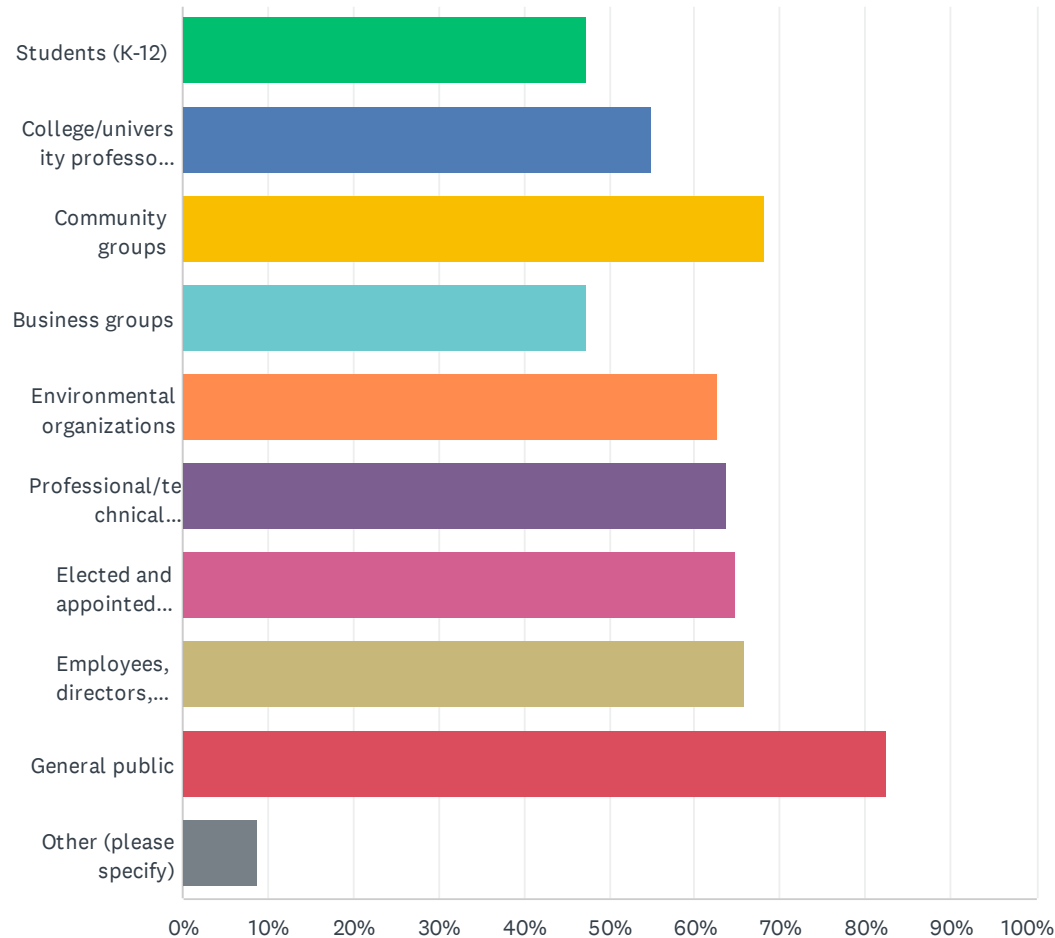
Q9 Please explain why you don't communicate about recycled water, e.g. someone else has that responsibility, limited resources for communications, not a priority, etc.

Answered: 1   Skipped: 98

| # | RESPONSES                       | DATE              |
|---|---------------------------------|-------------------|
| 1 | someone else has responsibility | 8/9/2021 12:09 PM |

Q10 Which audiences do you communicate with? Please check all that apply.

Answered: 91    Skipped: 8



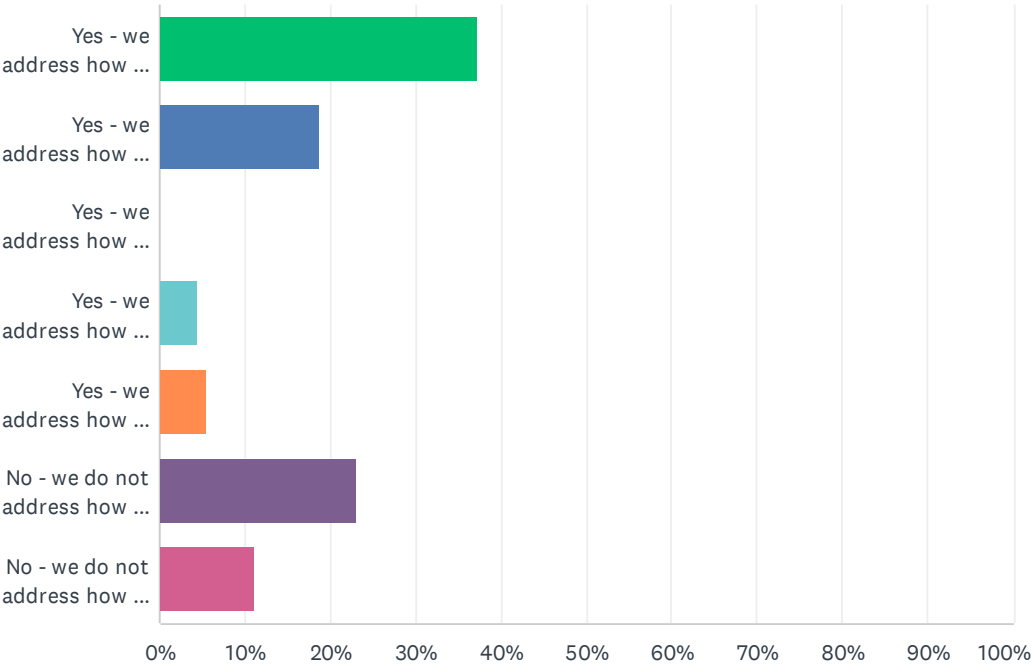
## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

| ANSWER CHOICES                                           | RESPONSES |    |
|----------------------------------------------------------|-----------|----|
| Students (K-12)                                          | 47.25%    | 43 |
| College/university professors and/or students            | 54.95%    | 50 |
| Community groups                                         | 68.13%    | 62 |
| Business groups                                          | 47.25%    | 43 |
| Environmental organizations                              | 62.64%    | 57 |
| Professional/technical audiences                         | 63.74%    | 58 |
| Elected and appointed officials and/or their staff       | 64.84%    | 59 |
| Employees, directors, and/or other internal stakeholders | 65.93%    | 60 |
| General public                                           | 82.42%    | 75 |
| Other (please specify)                                   | 8.79%     | 8  |
| Total Respondents: 91                                    |           |    |

| # | OTHER (PLEASE SPECIFY)                                                            | DATE              |
|---|-----------------------------------------------------------------------------------|-------------------|
| 1 | Developers                                                                        | 8/26/2021 3:33 PM |
| 2 | Regulated entities                                                                | 8/19/2021 3:16 PM |
| 3 | Local businesses                                                                  | 8/18/2021 2:41 PM |
| 4 | agency customers                                                                  | 8/10/2021 1:20 PM |
| 5 | media                                                                             | 8/9/2021 10:54 AM |
| 6 | Rw users, nursery, hoa, with regards to regulatory compliance and initial design. | 8/4/2021 12:29 PM |
| 7 | Medical field                                                                     | 7/29/2021 1:37 PM |
| 8 | Reuse Customers                                                                   | 7/28/2021 6:22 AM |

**Q11 Do you address removal and/or management of chemicals of emerging concern (CECs) in your communications? CECs include pharmaceuticals, personal care products, industrial chemicals, and other chemical compounds. Please check the answer that best applies to your situation.**

Answered: 91    Skipped: 8



## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

| ANSWER CHOICES                                                                                                                                                                                                                      | RESPONSES |           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|
| Yes - we address how our organization manages/removes CECs including pharmaceuticals. We also discuss how customers and the public can help keep CECs out of the recycled water system.                                             | 37.36%    | 34        |
| Yes - we address how our organization manages/removes CECs including pharmaceuticals but we do not usually discuss how customers and the public can help keep CECs out of the recycled water system.                                | 18.68%    | 17        |
| Yes - we address how our organization manages/removes CECs but do not specifically address management/removal of pharmaceuticals. We also discuss how customers and the public can help keep CECs out of the recycled water system. | 0.00%     | 0         |
| Yes - we address how our organization manages/removes pharmaceuticals only. We also discuss how customers and the public can help keep pharmaceuticals out of the recycled water system.                                            | 4.40%     | 4         |
| Yes - we address how our organization manages/removes pharmaceuticals only. We do not discuss how customers and the public can help keep pharmaceuticals out of the recycled water system.                                          | 5.49%     | 5         |
| No - we do not address how our organization manages/removes CECs. However, we discuss how customers and the public can help keep CECs out of the recycled water system.                                                             | 23.08%    | 21        |
| No - we do not address how our organization manages/removes CECs. We also do not discuss how customers and the public can help keep CECs out of the recycled water system.                                                          | 10.99%    | 10        |
| <b>TOTAL</b>                                                                                                                                                                                                                        |           | <b>91</b> |

| #  | IF YOU ANSWERED NO, PLEASE EXPLAIN WHY. IF YOU ANSWERED YES, PLEASE FEEL FREE TO ADD ANY COMMENTS HERE TO EXPLAIN YOUR ANSWER.                                                                                                                                                                                                              | DATE               |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1  | Actually our WWTPs both discharge to a local stream used for raw water withdraw to two Public Drinking Water treatment facilities. Therefore we consider all water recycled for reuse at some point. Also swimable & fishable are the NPDES Permit goals.                                                                                   | 8/19/2021 9:02 AM  |
| 2  | I tell people how technology can be used for removal, but my university isn't actively removing CECs. I also talk about what individuals, businesses, and industry can do. When talking with the public about this topic, I let them bring it up so that I don't introduce new fears about potable reuse that may not have already existed. | 8/17/2021 9:40 AM  |
| 3  | To my knowledge we do not other than the occasional social media outreach. Would like to get this information on our website!                                                                                                                                                                                                               | 8/17/2021 8:05 AM  |
| 4  | no direct authority                                                                                                                                                                                                                                                                                                                         | 8/17/2021 6:43 AM  |
| 5  | We are not an action agency but a funding agency.                                                                                                                                                                                                                                                                                           | 8/16/2021 8:03 PM  |
| 6  | We discuss how we plan to manage (usually monitoring) and remove pharm/CECs                                                                                                                                                                                                                                                                 | 8/16/2021 5:56 PM  |
| 7  | This response is relative to our DPR pilot project only. Our utility would benefit from communication tools to help inform customers and promote best management practices.                                                                                                                                                                 | 8/13/2021 8:51 AM  |
| 8  | We talk about how to keep pcp and pharmaceuticals out of the water with the public, but we don't link it to recycled water. We don't have our program up and running yet. Wasn't quite sure how to answer this question.                                                                                                                    | 8/11/2021 11:42 AM |
| 9  | We help publics understand the issues of Constituents of Emerging Interest. We have provided information about how language influences feelings -- for instance the word CECs is super charged to create alarm. We have provided some information through the Water Research Foundation.                                                    | 8/9/2021 2:26 PM   |
| 10 | My organization does not treat water                                                                                                                                                                                                                                                                                                        | 8/6/2021 5:03 PM   |
| 11 | organization not involved with water supply or treatment                                                                                                                                                                                                                                                                                    | 8/6/2021 12:42 PM  |
| 12 | It is my understanding that we do not have any communication policy regarding CECs. Although we are not a water treatment plant, we are tracking CECs , as required                                                                                                                                                                         | 8/4/2021 12:29 PM  |
| 13 | We provide strategic recommendations and also help develop messaging and collateral materials to support these various initiatives.                                                                                                                                                                                                         | 8/4/2021 11:23 AM  |

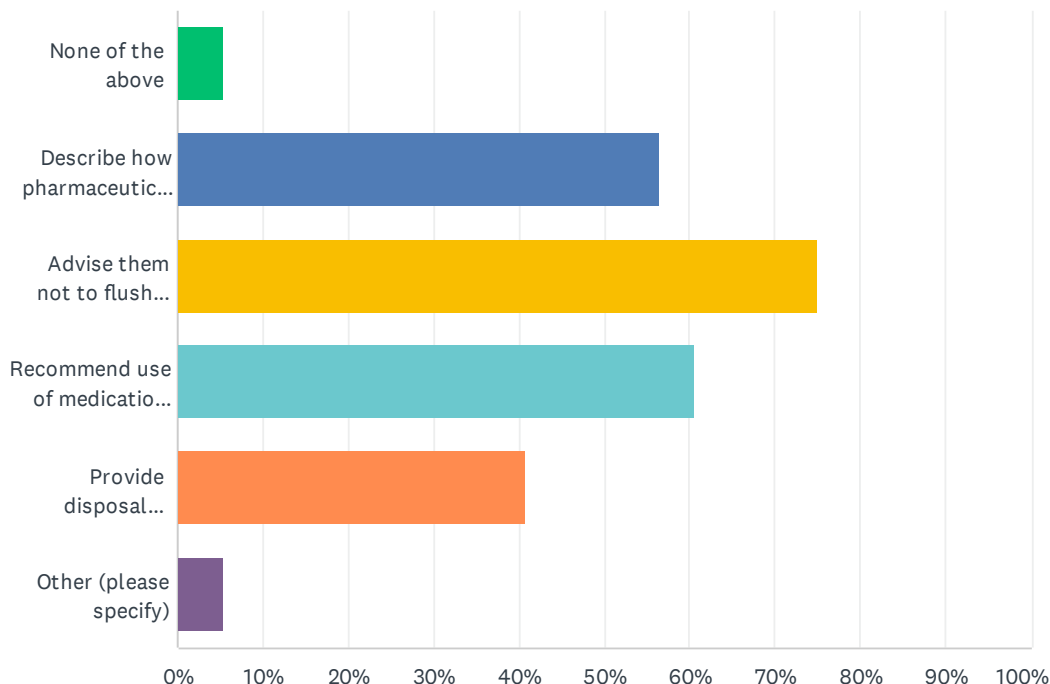


## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                                                                                                                                                                                                                                                                                                                                                                                                                           |                    |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 14 | We usually only touch on CECs as a component of our entire study. We are not far enough along in the public conversation to get there yet.                                                                                                                                                                                                                                                                                | 8/3/2021 3:07 PM   |
| 15 | No, we have not had success in strategic communications related to this topic with our technical staff (even after a few meetings to discuss this topic). Unfortunately our bids for help in this area have not been prioritized.                                                                                                                                                                                         | 8/3/2021 11:10 AM  |
| 16 | We do not have an active treatment program for the removal CECs. We avoid where possible, but we communicate with public that it is common to have CECs in recycled water.                                                                                                                                                                                                                                                | 7/30/2021 7:36 AM  |
| 17 | Reuse only for Lawn and Golf Course irrigation                                                                                                                                                                                                                                                                                                                                                                            | 7/28/2021 6:22 AM  |
| 18 | Our stakeholders generally accept that we all live downstream so efforts to return highly treated wastewater back upstream to the regional reservoirs would not change the fact that they already are drinking someone else's upstream return flow. We don't hear concerns from our local environmental non-profits and don't hear about topic raised in our stakeholder groups as a major concern unless we bring it up. | 7/27/2021 2:02 PM  |
| 19 | We don't produce recycled water; so I sometimes have to explain why we don't. I often talk about various contaminants in wastewater.                                                                                                                                                                                                                                                                                      | 7/27/2021 9:01 AM  |
| 20 | We have our own pharmaceutical bin collection program. That is the focus of our outreach - pollution prevention.                                                                                                                                                                                                                                                                                                          | 7/26/2021 12:54 PM |
| 21 | This has not been a routine area of interest. We address how our treatment removes these chemicals when asked but have not been doing proactive messaging on this issue.                                                                                                                                                                                                                                                  | 7/26/2021 12:50 PM |

## Q12 What messages do you use with the public to address pharmaceutical management in recycled water? Please check all that apply.

Answered: 76 Skipped: 23



| ANSWER CHOICES                                                        | RESPONSES |    |
|-----------------------------------------------------------------------|-----------|----|
| None of the above                                                     | 5.26%     | 4  |
| Describe how pharmaceuticals are removed during the treatment process | 56.58%    | 43 |
| Advise them not to flush unused medications                           | 75.00%    | 57 |
| Recommend use of medication takeback programs                         | 60.53%    | 46 |
| Provide disposal options for unused medications                       | 40.79%    | 31 |
| Other (please specify)                                                | 5.26%     | 4  |
| Total Respondents: 76                                                 |           |    |

| # | OTHER (PLEASE SPECIFY)                                                                                                                                                      | DATE               |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1 | Promote Industrial Enhanced Source Control Programs (IESCPs)                                                                                                                | 8/30/2021 11:59 AM |
| 2 | Work with local hospital in their recycling & disposal program.                                                                                                             | 8/19/2021 9:12 AM  |
| 3 | Explain how we test for over 250 constituents including pharmaceuticals; Explain multiple treatment steps and their mechanisms for removal though not specifically for CECs | 8/17/2021 7:19 AM  |
| 4 | Describe the results of the research we fund.                                                                                                                               | 8/16/2021 8:06 PM  |

## Q13 Please describe any information and/or resources you use when communicating about CECs, pharmaceuticals and recycled water. Share where you may get this information (technical staff, websites, technical organizations, etc).

Answered: 47 Skipped: 52

| #  | RESPONSES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | DATE               |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1  | I often show a summary of research by Dr. Bill Mitch at Stanford that compares the risks of pharmaceuticals and other CECs like NDMA and other DBPs. In general, the latter has a risk that is an order of magnitude higher than pharma in terms of public health during for potable reuse and we often design our reuse facilities to address NDMA. This helps provide context in a useful way to many once they understand it. There are also great graphics to help the public to understand why not to flush pills and certain industrial type chemicals. Lastly, I try to educate engineers on new technologies like electrochemical oxidation which pharma companies have recently begun using to remove 100% of pharmaceuticals and other difficult to remove "non polar, low molecular weight" compounds from their industrial discharges. This could be a key technology for future direct potable reuse projects. | 8/30/2021 11:59 AM |
| 2  | Info from NACWA, other POTWs, general internet searches, and articles in wastewater professional magazines.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8/27/2021 2:12 PM  |
| 3  | WaterReuse Association study with info on exposure routes and exposure times to achieve recommended doses of common chemicals like caffeine and ibuprofen.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8/26/2021 3:45 PM  |
| 4  | fact sheets, reports authored by LOTT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 8/23/2021 9:08 AM  |
| 5  | website, facebook, twitter, instagram, and nextdoor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8/23/2021 5:47 AM  |
| 6  | <a href="https://www.usgs.gov/special-topic/water-science-school/science/pharmaceuticals-water?qt-science_center_objects=0#qt-science_center_objects">https://www.usgs.gov/special-topic/water-science-school/science/pharmaceuticals-water?qt-science_center_objects=0#qt-science_center_objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 8/22/2021 12:52 PM |
| 7  | We do not actively run our own pharmaceutical take back program, but our local police and several pharmacies do. We direct public to these options and do our best to assist in promoting special take back events when they occur (normally a single day). When we present info to public in person, we will inform them that our facility is not designed specifically to remove CECs and pharmaceuticals, but we do still manage to remove some. We let them know that even if removed (and if not transformed thru biological process), they will still be in the biosolids which will eventually be land applied. The best way to limit exposure is to not discharge to sewer and dispose of appropriately thru local pharmacy or law enforcement take-back events. Our info comes from understanding of info obtained from technical organizations and info they share, typically thru their websites.                | 8/20/2021 7:09 AM  |
| 8  | PADEP & USEPA & other technical outlets.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 8/19/2021 9:12 AM  |
| 9  | Main focus is on providing resources for customers to find out where they can take their waste pharmaceuticals. We have a website for this purpose. Dontflushyourmeds.com                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 8/19/2021 8:59 AM  |
| 10 | We have drop boxes and run information (ads & PSAs) on social media, media and website.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8/19/2021 7:45 AM  |
| 11 | WEF, EWG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 8/18/2021 4:15 PM  |
| 12 | Ecology's website, Thurston County's website                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8/18/2021 2:44 PM  |
| 13 | I use the the State Water Boards website and information SWAMP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8/17/2021 9:30 AM  |
| 14 | Technical staff, students, grant awardees.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8/16/2021 8:06 PM  |
| 15 | We mainly discuss how reverse osmosis in the advanced treatment process removes pharmaceuticals. We also recommend never flushing them and places they can drop them off at as an alternative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8/16/2021 7:24 PM  |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                                                                                                                                                                                                                                                                                                                                                                                           |                    |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 16 | We have consultants that provide us messaging                                                                                                                                                                                                                                                                                                                                             | 8/16/2021 5:59 PM  |
| 17 | Using multiple sources                                                                                                                                                                                                                                                                                                                                                                    | 8/16/2021 5:50 PM  |
| 18 | Promote police drug take-back events; link to locations that accept hazardous waste                                                                                                                                                                                                                                                                                                       | 8/12/2021 2:52 PM  |
| 19 | We make social media posts, perhaps include in bill inserts, direct residents to medication drop-off locations. We get our information from websites, such as the police department's webpage and EPA.                                                                                                                                                                                    | 8/11/2021 11:45 AM |
| 20 | Reports on studies conducted by our own staff and by industry research organizations.                                                                                                                                                                                                                                                                                                     | 8/10/2021 1:24 PM  |
| 21 | We have tested for CECs in our reuse water and found very little in our water                                                                                                                                                                                                                                                                                                             | 8/10/2021 9:09 AM  |
| 22 | In-house collateral that describes pharmaceutical removal as a part of the advance water treatment process                                                                                                                                                                                                                                                                                | 8/9/2021 8:45 AM   |
| 23 | CECs are not a focus of the non-potable public access reuse system. However the City initiated a potable reuse pilot study in 2016 which included measuring CECs in the influent and through the treatment process                                                                                                                                                                        | 8/7/2021 12:33 PM  |
| 24 | Utility informational material and presentations, state government documents and personal communications, academic publications, reports by associations and non-governmental organizations.                                                                                                                                                                                              | 8/6/2021 12:53 PM  |
| 25 | Reverse osmosis technology info. Info provided in tour and video.                                                                                                                                                                                                                                                                                                                         | 8/4/2021 9:44 PM   |
| 26 | Answers during in person briefings / presentations. Information in videos, web, social media and print. Via earned media and ads.                                                                                                                                                                                                                                                         | 8/4/2021 8:33 PM   |
| 27 | We have our own graphics team that films and edits videos that are posted to social media, Youtube and our website, these videos educate the community of pharmaceuticals and CECs. Our technical staff research and write scripts for these videos. Most information comes from online articles or websites from other reputable organizations.                                          | 8/4/2021 12:35 PM  |
| 28 | AWWA, technical staff                                                                                                                                                                                                                                                                                                                                                                     | 8/4/2021 9:02 AM   |
| 29 | <a href="https://floridadep.gov/southwest/sw-permitting/campaign/one-water-florida">https://floridadep.gov/southwest/sw-permitting/campaign/one-water-florida</a> Use slides from consultants as well as Florida WaterReuse's Reuse Fact sheets. Contact <a href="mailto:weisst@Hillsboroughcounty.org">weisst@Hillsboroughcounty.org</a> for Fact Sheets                                 | 8/4/2021 6:14 AM   |
| 30 | We have created fact sheets on individual CECs if we need them, but have not used them yet.                                                                                                                                                                                                                                                                                               | 8/3/2021 3:10 PM   |
| 31 | (I previously answered no we do not include this info in our messaging) However, we do have several grant projects we've funded for proper disposal of unused medications. We sponsored the "Don't Rush to Flush" program in Santa Clara County. We also briefly describe how reverse osmosis and micro filtration help remove pharmaceuticals from wastewater, but we don't go in-depth. | 8/3/2021 11:12 AM  |
| 32 | We keep a fact sheet on hand explaining Pharmaceuticals and non-potable RW that contextualizes pharma exposure from RW: "it would take X thousand years to get one dose of Aspirin.." I don't have it in front of me right now and can't recall who created it (WaterReuse? BACWA?) but it wasn't made by our agency.                                                                     | 8/2/2021 8:45 AM   |
| 33 | Describe how the advanced water treatment process removes pharmaceuticals. Obtain all relevant information from internal water quality staff.                                                                                                                                                                                                                                             | 7/31/2021 7:04 PM  |
| 34 | Technical staff and technical organizations like WaterReuse.                                                                                                                                                                                                                                                                                                                              | 7/30/2021 7:38 AM  |
| 35 | Our organization participates in a statewide panel on emerging contaminants and produces an educational public report.                                                                                                                                                                                                                                                                    | 7/30/2021 7:30 AM  |
| 36 | Most of the information we get is from technical staff or health and risk experts. The technology we will use to purify treated wastewater is effective at removing microorganisms and contaminants of concern.                                                                                                                                                                           | 7/29/2021 2:06 PM  |
| 37 | WaterReuse and Kennedy Jenks materials on dose/exposure equivalents of CECs from recycled water                                                                                                                                                                                                                                                                                           | 7/29/2021 1:19 PM  |
| 38 | EPA, AWWA                                                                                                                                                                                                                                                                                                                                                                                 | 7/29/2021 8:40 AM  |
| 39 | <a href="https://www.southernnevadahealthdistrict.org/Health-Topics/proper-medication-disposal/">https://www.southernnevadahealthdistrict.org/Health-Topics/proper-medication-disposal/</a>                                                                                                                                                                                               | 7/29/2021 6:30 AM  |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
|    | <a href="https://www.cleanwaterteam.com/public-outreach/pain-in-the-drain">https://www.cleanwaterteam.com/public-outreach/pain-in-the-drain</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |
| 40 | <a href="https://www.cleanwaterteam.com/public-outreach/pain-in-the-drain">www.cleanwaterteam.com https://www.cleanwaterteam.com/public-outreach/pain-in-the-drain</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 7/28/2021 4:46 PM  |
| 41 | <p>Risk Assessment Study of Pharmaceuticals and Personal Care Products in Non-potable Recycled Water to Support Public Review - WRF 09-07 We provide the collateral materials from this project to those who express concerns. Found at: <a href="https://watereuse.org/educate/fact-sheets/">https://watereuse.org/educate/fact-sheets/</a> Helping People Understand Potable Reuse: A Flexible Communication Plan - Excerpts from WRF 13-02 Found at: <a href="https://watereuse.org/educate/fact-sheets/">https://watereuse.org/educate/fact-sheets/</a> Model Communication Plans for Increasing Awareness and Fostering Acceptance of Direct Potable Reuse WRF 13-02 Videos: <a href="https://watereuse.org/educate/water-reuse-101/medical-community-initiative/">https://watereuse.org/educate/water-reuse-101/medical-community-initiative/</a> And <a href="https://watereuse.org/educate/videos/">https://watereuse.org/educate/videos/</a> - Expert voices The reports from the Expert Panel on DPR for the California State Water Board: <a href="https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/RW_SWA_DPRexpertpanel.html">https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/RW_SWA_DPRexpertpanel.html</a> Downstream – Context, Understanding, Acceptance: Effect of Prior Knowledge of Unplanned Potable Reuse on the Acceptance of Planned Potable Reuse found at: <a href="https://watereuse.org/watereuse-research/09-01-downstream-context-understanding-acceptance-effect-of-prior-knowledge-of-unplanned-potable-reuse-on-the-acceptance-of-planned-potable-reuse/">https://watereuse.org/watereuse-research/09-01-downstream-context-understanding-acceptance-effect-of-prior-knowledge-of-unplanned-potable-reuse-on-the-acceptance-of-planned-potable-reuse/</a> World Health Organization's Guidelines for Potable Reuse published in 2017. Found at: <a href="https://www.who.int/publications/i/item/9789241512770">https://www.who.int/publications/i/item/9789241512770</a></p> | 7/28/2021 12:07 PM |
| 42 | Technical staff and industry information/fact sheets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 7/28/2021 9:23 AM  |
| 43 | We will share information on social media about a local government hosting a drug takeback program                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 7/27/2021 2:13 PM  |
| 44 | Our messages are aligned with BAPPG/BACWA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7/27/2021 9:06 AM  |
| 45 | We develop it in-house.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 7/26/2021 1:10 PM  |
| 46 | On our website ( <a href="https://www.lacsd.org/NoDrugs/">https://www.lacsd.org/NoDrugs/</a> ), we have pages dedicated to "No Drugs Down the Drain" and occasionally post these messages on our social media platforms.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7/26/2021 12:59 PM |
| 47 | There is a site we link to in our discussion of local area disposal of medications/pharmaceuticals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 7/26/2021 12:52 PM |

**Q14 Please upload any of these materials and resources you may use to address CECs and pharmaceuticals in recycled water. We will use these materials as an informational archive and may reference them as we streamline messaging. No materials will be shared unless permitted by your organization.**

Answered: 7   Skipped: 92

| # | FILE NAME                                        | FILE SIZE | DATE              |
|---|--------------------------------------------------|-----------|-------------------|
| 1 | What NOT to Flush (in-house printer version).pdf | 944KB     | 8/27/2021 2:11 PM |
| 2 | CECs in Recycled Water.pdf                       | 1.1MB     | 8/26/2021 3:45 PM |
| 3 | ARC Brochure 2020 _Final.pdf                     | 10.1MB    | 8/9/2021 8:44 AM  |
| 4 | apec_emerging_cont_final.pdf                     | 4.7MB     | 7/30/2021 7:30 AM |
| 5 | Purified Water Presentation Community.pdf        | 1.3MB     | 7/29/2021 2:05 PM |
| 6 | CWC_Hazard_Waste.pdf                             | 1.2MB     | 7/27/2021 2:12 PM |
| 7 | Newsletter_Vol_16_Issue_4.pdf                    | 1.3MB     | 7/27/2021 9:06 AM |

**Q15 Please provide websites and/or links to materials and resources you may use to address CECs and pharmaceuticals in recycled water. Again, we will use these materials as an informational archive and may reference them as we streamline messaging. No materials will be shared unless permitted by your organization.**

Answered: 21 Skipped: 78

| #  | RESPONSES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DATE               |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1  | <a href="http://www.dmmwra.org/177/What-Not-to-Flush">http://www.dmmwra.org/177/What-Not-to-Flush</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 8/27/2021 2:12 PM  |
| 2  | <a href="https://watereuse.org/educate/fact-sheets/">https://watereuse.org/educate/fact-sheets/</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8/26/2021 3:45 PM  |
| 3  | Fact sheets here: <a href="https://lottcleanwater.org/projects/reclaimed-water-infiltration-study/study-introduction/">https://lottcleanwater.org/projects/reclaimed-water-infiltration-study/study-introduction/</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 8/23/2021 9:08 AM  |
| 4  | The Ephrata Borough Police Department participates as one of Lancaster County's 17 drug-take-back locations at 124 South State Street , M-F from 8:am – 4: pm phone 717-738-9265 with questions. + PENNSYLVANIA CVS PHARMACY, L.L.C. Addr 1440 N. READING RD. Addr 2 City, State ZipEPHRATA, PA 17522 Dist2 miles Map Map Bus NameWELLSPAN PHARMACY Addr 1183 N READING RD Addr 2SUITE 9 City, State ZipEPHRATA, PA 17522 Dist2 miles Map Map 4-24-21 National Drug take back day                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8/19/2021 9:12 AM  |
| 5  | <a href="http://Dontflushyourmeds.com">Dontflushyourmeds.com</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8/19/2021 8:59 AM  |
| 6  | <a href="https://awwa.onlinelibrary.wiley.com/doi/10.1002/awwa.1476">https://awwa.onlinelibrary.wiley.com/doi/10.1002/awwa.1476</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8/17/2021 9:48 AM  |
| 7  | <a href="https://www.waterboards.ca.gov/water_issues/programs/swamp/cec_aquatic/">https://www.waterboards.ca.gov/water_issues/programs/swamp/cec_aquatic/</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8/17/2021 9:30 AM  |
| 8  | <a href="http://Venturawater.net">Venturawater.net</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8/16/2021 5:59 PM  |
| 9  | <a href="https://www.dsrsd.com/outreach/what-not-to-flush">https://www.dsrsd.com/outreach/what-not-to-flush</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 8/12/2021 2:52 PM  |
| 10 | <a href="https://www.altamonte.org/1011/About-pureALTA">https://www.altamonte.org/1011/About-pureALTA</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8/7/2021 12:33 PM  |
| 11 | <a href="https://wrrc.arizona.edu/publications/arroyo-newsletter/arroyo-2016-potable-reuse-water">https://wrrc.arizona.edu/publications/arroyo-newsletter/arroyo-2016-potable-reuse-water</a><br><a href="https://wrrc.arizona.edu/publications/arroyo-newsletter/arroyo-2013-contaminants-emerging-concern-water">https://wrrc.arizona.edu/publications/arroyo-newsletter/arroyo-2013-contaminants-emerging-concern-water</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 8/6/2021 12:53 PM  |
| 12 | <a href="https://youtu.be/uAXfR9WLNiY">https://youtu.be/uAXfR9WLNiY</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 8/4/2021 8:33 PM   |
| 13 | <a href="https://www.cityofventura.ca.gov/1912/Source-Control">https://www.cityofventura.ca.gov/1912/Source-Control</a><br><a href="https://www.cityofventura.ca.gov/1915/Residential-Dischargers">https://www.cityofventura.ca.gov/1915/Residential-Dischargers</a><br><a href="https://www.facebook.com/venturawater/">https://www.facebook.com/venturawater/</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8/4/2021 12:35 PM  |
| 14 | <a href="https://floridadep.gov/southwest/sw-permitting/campaign/one-water-florida">https://floridadep.gov/southwest/sw-permitting/campaign/one-water-florida</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8/4/2021 6:14 AM   |
| 15 | We like WaterReuse materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 8/3/2021 3:10 PM   |
| 16 | <a href="https://www.youtube.com/watch?v=k1Y6NuuHJxs&amp;t=8s">https://www.youtube.com/watch?v=k1Y6NuuHJxs&amp;t=8s</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 7/29/2021 2:06 PM  |
| 17 | <a href="http://www.cleanwaterteam.com">www.cleanwaterteam.com</a> <a href="https://www.cleanwaterteam.com/public-outreach/pain-in-the-drain">https://www.cleanwaterteam.com/public-outreach/pain-in-the-drain</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 7/28/2021 4:46 PM  |
| 18 | Risk Assessment Study of Pharmaceuticals and Personal Care Products in Non-potable Recycled Water to Support Public Review - WRF 09-07 We provide the collateral materials from this project to those who express concerns. Found at: <a href="https://watereuse.org/educate/fact-sheets/">https://watereuse.org/educate/fact-sheets/</a> Helping People Understand Potable Reuse: A Flexible Communication Plan - Excerpts from WRF 13-02 Found at: <a href="https://watereuse.org/educate/fact-sheets/">https://watereuse.org/educate/fact-sheets/</a> Model Communication Plans for Increasing Awareness and Fostering Acceptance of Direct Potable Reuse WRF 13-02 Videos: <a href="https://watereuse.org/educate/water-reuse-101/medical-community-initiative/">https://watereuse.org/educate/water-reuse-101/medical-community-initiative/</a> And <a href="https://watereuse.org/educate/videos/">https://watereuse.org/educate/videos/</a> - Expert voices The reports from the Expert Panel on DPR for the California State Water Board: | 7/28/2021 12:07 PM |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

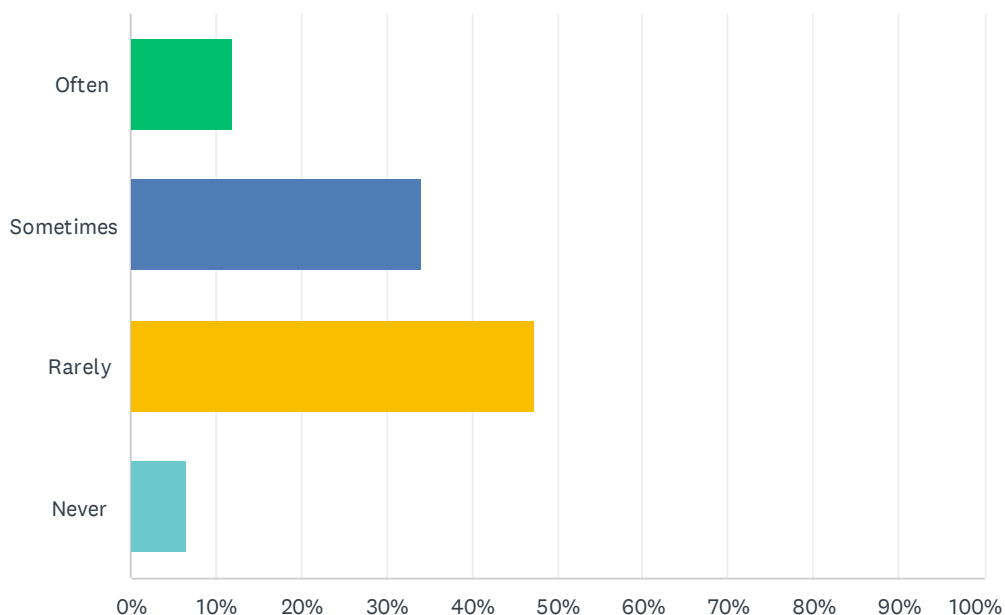
[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/RW\\_SWA\\_DPRexpertpanel.html](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/RW_SWA_DPRexpertpanel.html) Downstream – Context, Understanding, Acceptance: Effect of Prior Knowledge of Unplanned Potable Reuse on the Acceptance of Planned Potable Reuse found at: <https://watereuse.org/watereuse-research/09-01-downstream-context-understanding-acceptance-effect-of-prior-knowledge-of-unplanned-potable-reuse-on-the-acceptance-of-planned-potable-reuse/> World Health Organization's Guidelines for Potable Reuse published in 2017. Found at: <https://www.who.int/publications/i/item/9789241512770>

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 19 | <a href="https://www.vallejowastewater.org/174/Unwanted-Medicine-Disposal">https://www.vallejowastewater.org/174/Unwanted-Medicine-Disposal</a>                                                                                                                                                                                                                                                                                          | 7/27/2021 9:06 AM  |
| 20 | <a href="https://www centralsan.org/pharmaceuticals">https://www centralsan.org/pharmaceuticals</a> <a href="https://www centralsan.org/sites/main/files/file-attachments/pharmaceutical_disposal_brochure_0.pdf?1574271746">https://www centralsan.org/sites/main/files/file-attachments/pharmaceutical_disposal_brochure_0.pdf?1574271746</a><br><a href="https://www centralsan.org/pipeline">https://www centralsan.org/pipeline</a> | 7/26/2021 1:10 PM  |
| 21 | <a href="https://med-project.org/">https://med-project.org/</a>                                                                                                                                                                                                                                                                                                                                                                          | 7/26/2021 12:52 PM |



## Q16 How frequently do you get questions or hear concerns about pharmaceuticals in recycled water? Please select one answer that best describes your experience.

Answered: 76 Skipped: 23



| ANSWER CHOICES | RESPONSES |
|----------------|-----------|
| Often          | 11.84% 9  |
| Sometimes      | 34.21% 26 |
| Rarely         | 47.37% 36 |
| Never          | 6.58% 5   |
| TOTAL          | 76        |

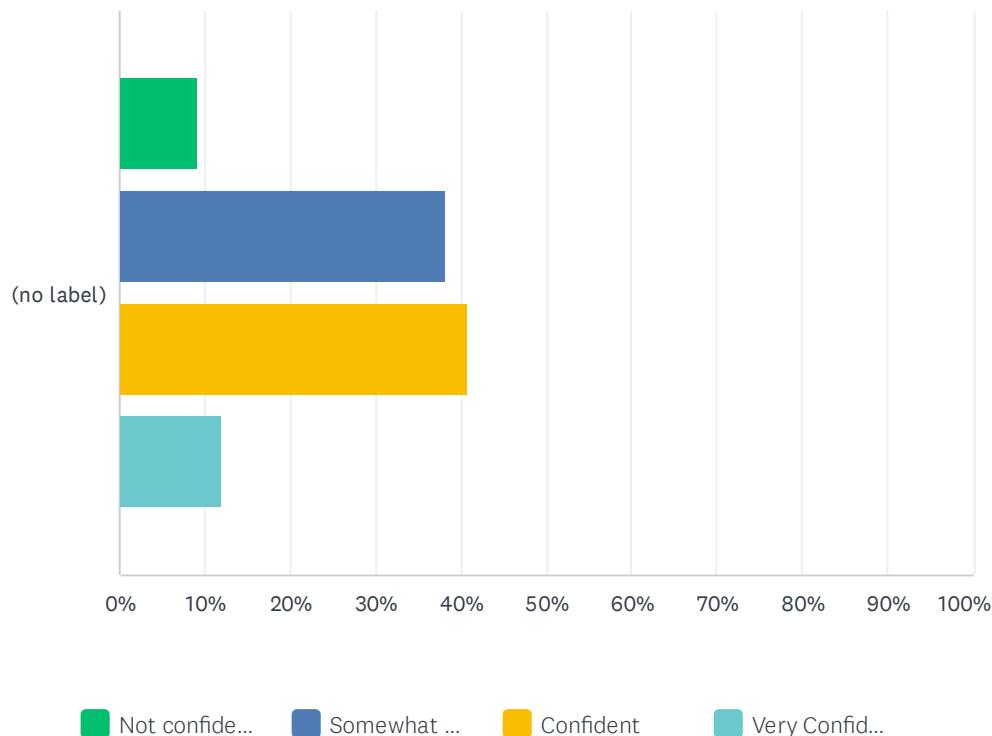
| # | ANY COMMENTS?                                                                                                                                                                                             | DATE              |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1 | Personally I do not, but I am unsure if other staff may be receiving comments/questions                                                                                                                   | 8/17/2021 8:05 AM |
| 2 | Comments are typically general concerns about chemicals. Public responds very well to hearing that we test for over 250 chemicals and constituents, as they perceive that we are aware and taking action. | 8/17/2021 7:19 AM |
| 3 | Our customers only receive public access reuse for irrigation. DPR is only a feasibility study at this time.                                                                                              | 8/13/2021 9:16 AM |
| 4 | This only applies to the potable pilot project. We seldom get questions about CECs for the reuse irrigation                                                                                               | 8/7/2021 12:33 PM |
| 5 | I have never recieved a question about this from the public.                                                                                                                                              | 8/4/2021 12:35 PM |
| 6 | Defining what is a safe level? Why is zero not achievable?                                                                                                                                                | 8/4/2021 10:37 AM |
| 7 | Would like to be better prepared to address these questions                                                                                                                                               | 8/4/2021 9:02 AM  |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                                                                                    |                   |
|----|------------------------------------------------------------------------------------|-------------------|
| 8  | Recently only get comments on PFAS                                                 | 8/3/2021 3:10 PM  |
| 9  | Mostly around future potable reuse, not around our current non-potable program.    | 8/2/2021 8:45 AM  |
| 10 | I'd estimate that we get questions about pharmaceuticals about 35-50% of the time. | 7/31/2021 7:04 PM |
| 11 | The comments are about pharmaceuticals in wastewater, not recycled water           | 7/27/2021 9:06 AM |

## Q17 How confident do you feel when you communicate about CEC or pharmaceutical management and/or removal in recycled water?

Answered: 76 Skipped: 23



|            | NOT CONFIDENT AT ALL | SOMEWHAT CONFIDENT | CONFIDENT | VERY CONFIDENT | TOTAL | WEIGHTED AVERAGE |
|------------|----------------------|--------------------|-----------|----------------|-------|------------------|
| (no label) | 9.21%                | 38.16%             | 40.79%    | 11.84%         | 76    | 2.55             |
|            | 7                    | 29                 | 31        | 9              |       |                  |

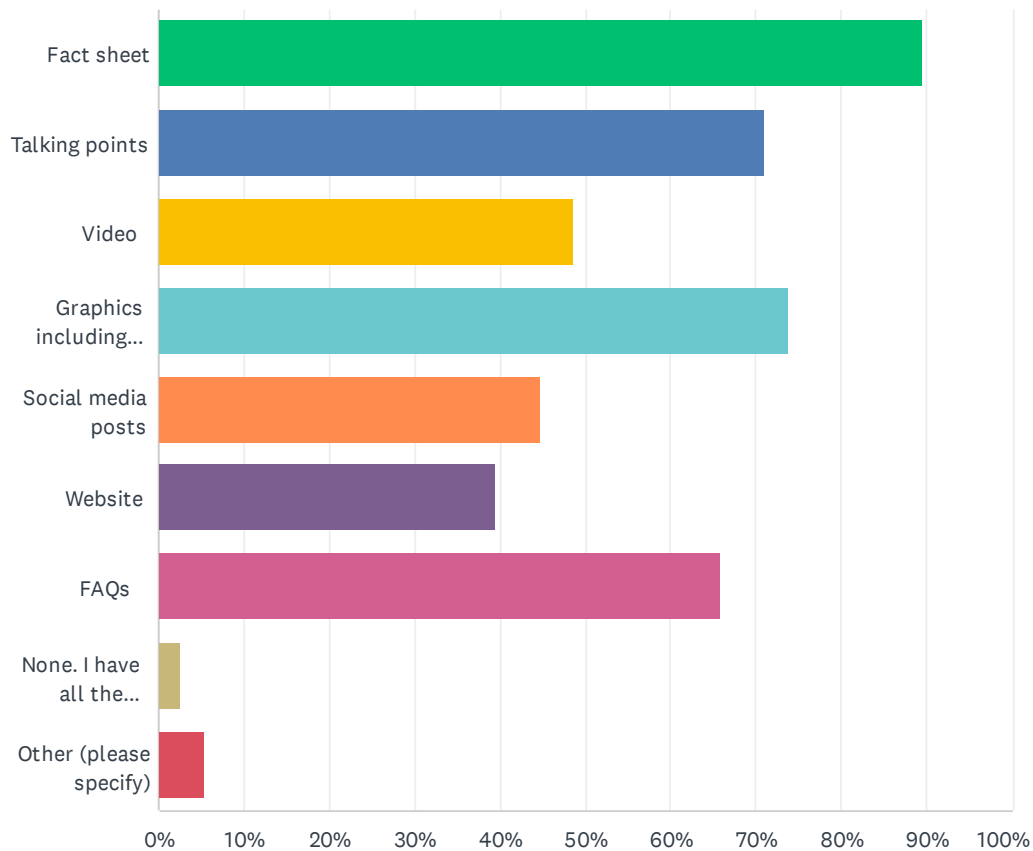
| # | ANY COMMENTS?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DATE               |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1 | Context, context, context. Communication regarding "new risks" is severely lacking without context. It is very important to convey the reality of the risk, but also how it compares to "older risks" so that the general public can decide how important this risk is to them. In general, Pharmaceuticals and CECs present a verifiable risk, but are generally well removed via Advanced Water Treatment at typical concentrations during potable reuse. There are also other tools such as new technologies, source control strategies, and new regulations that can reduce these risks to manageable concerns. The public and stakeholders need to understand both the concern and context to help support innovation regulation, etc. to address the risk, but also to reduce the amount of residential disposal at the same time. | 8/30/2021 11:59 AM |
| 2 | When we do hear from stakeholders, they are a very passionate, vocal minority but can get the ear of officials that can amplify their voices significantly.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8/26/2021 3:45 PM  |
| 3 | As a scientist with some background in toxicology, I am concerned. While I think we should continue to offer means for pharmaceutical disposal, this simply does not address the issue. Most pharmaceuticals are taken and not disposed of. They may undergo metabolism in the body and are largely excreted unchanged in urine and feces. Some removal may occur at the POTW, depending on treatment processes used, but some portion enters the waterways. We are not sure what the future impacts will be - of using recycled water to drink or to water our food crops with. Yet we are in a position of increasing urgency to begin doing exactly that.                                                                                                                                                                             | 8/19/2021 8:59 AM  |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 4  | I am confident with the information I have at the time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 8/18/2021 4:15 PM  |
| 5  | I think it's difficult to feel "very confident" because there are still unknown unknowns. Plus, when talking with the public in my community, we don't know what kind of treatment system we might have for potable reuse in the future, so I don't want to emphasize the capabilities of a certain type of treatment only to have it not used in our eventual system.                                                                                                                                                                        | 8/17/2021 9:48 AM  |
| 6  | While most chemicals are removed by multiple types of treatment, a small group is known to be harder to remove. The public is not usually knowledgeable enough to ask about these specifically (the specific ones that are asked about are typically those that are easily removed early in the process), but it is a concern. While these chemicals may not be in the water or may only be present in trace amounts, my concern is that the public will want to hear we fully remove them. Even so, this may not be economical or necessary. | 8/17/2021 7:19 AM  |
| 7  | I used design treatment to address CEC and pharma residuals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 8/16/2021 5:50 PM  |
| 8  | I tell people that our treatment process removes pharmaceuticals, but I'm never sure if that is fully true or partially true. I would like to better understand what compounds do pass through the treatment process and which are removed fully.                                                                                                                                                                                                                                                                                             | 8/9/2021 8:45 AM   |
| 9  | Our messaging on CECs so far has been limited to the potable reuse pilot project and to a relatively technical audience. This messaging will expand when and if the City moves forward with a full scale project                                                                                                                                                                                                                                                                                                                              | 8/7/2021 12:33 PM  |
| 10 | Need relevant and current research results and examples of how and where potable reuse has been done with CECs present                                                                                                                                                                                                                                                                                                                                                                                                                        | 8/4/2021 10:37 AM  |
| 11 | Would like to be better prepared to address these questions; talking points, visuals, resources to point to                                                                                                                                                                                                                                                                                                                                                                                                                                   | 8/4/2021 9:02 AM   |
| 12 | 20 years of experience speaking about reclaimed water (public access reuse) as well as 12 years of experience speaking about Potable Reuse                                                                                                                                                                                                                                                                                                                                                                                                    | 8/4/2021 6:14 AM   |
| 13 | Haven't had major CEC communications with general public... only regulators and technical audiences.                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8/3/2021 3:10 PM   |
| 14 | The challenge with public perception is that ANY trace of a CEC is a concern and trying to put in context that the levels are so reduced as to be insignificant to users.                                                                                                                                                                                                                                                                                                                                                                     | 7/29/2021 1:19 PM  |
| 15 | It's going to be an issue in the future as we move to potable re-use.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7/29/2021 8:40 AM  |
| 16 | Customer expectations are that everything is removed from WW.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 7/26/2021 1:10 PM  |
| 17 | We will be creating internal talking points about how our treatment processes remove PPCP's so that we have consistent and effective communications when this issue is raised.                                                                                                                                                                                                                                                                                                                                                                | 7/26/2021 12:59 PM |

## Q18 What additional collateral resources would be helpful to you in your communications in addressing CECs including pharmaceuticals in recycled water? Please check all that apply.

Answered: 76 Skipped: 23



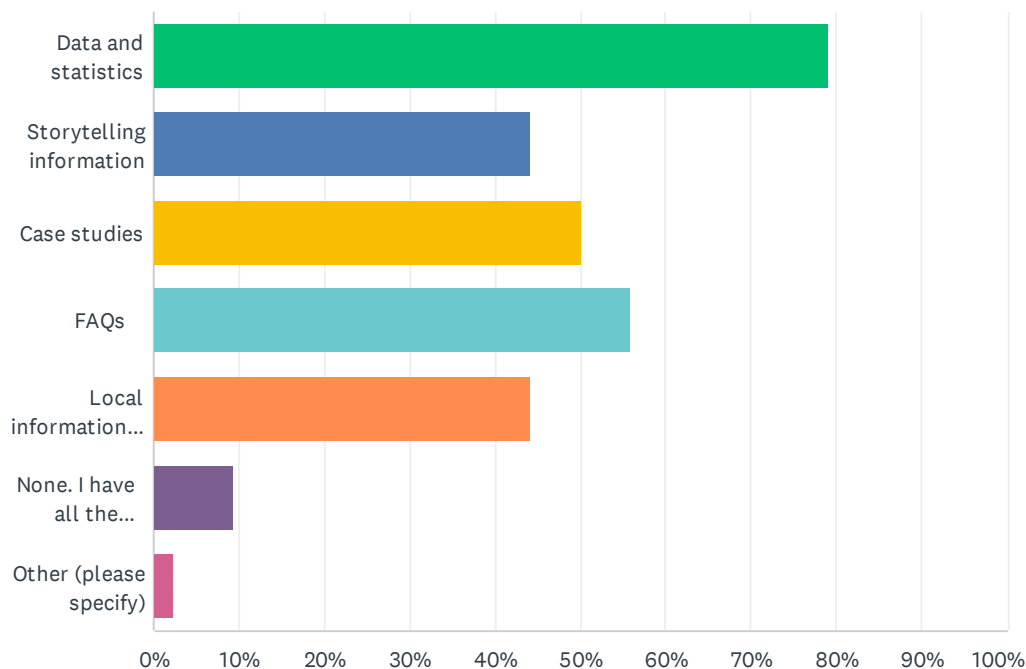
| ANSWER CHOICES                         | RESPONSES |    |
|----------------------------------------|-----------|----|
| Fact sheet                             | 89.47%    | 68 |
| Talking points                         | 71.05%    | 54 |
| Video                                  | 48.68%    | 37 |
| Graphics including infographics        | 73.68%    | 56 |
| Social media posts                     | 44.74%    | 34 |
| Website                                | 39.47%    | 30 |
| FAQs                                   | 65.79%    | 50 |
| None. I have all the resources I need. | 2.63%     | 2  |
| Other (please specify)                 | 5.26%     | 4  |
| Total Respondents: 76                  |           |    |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

| # | OTHER (PLEASE SPECIFY)                                                                                                                                                                                                                                  | DATE               |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1 | FAQs can be helpful for some, but well produced graphics that can be shared on social media have a wider impact. It's important to add references during this age of misinformation.                                                                    | 8/30/2021 11:59 AM |
| 2 | MORE DISPOSAL OPTIONS                                                                                                                                                                                                                                   | 8/25/2021 2:05 PM  |
| 3 | Any of these are helpful - we are building our website to share videos, fact sheets, and other web sites easily with the curious public.                                                                                                                | 7/29/2021 1:19 PM  |
| 4 | Collateral materials like those generated from the Risk Assessment Study of Pharmaceuticals and Personal Care Products in Non-potable Recycled Water to Support Public Review - WRF 09-07 But with a focus on CECs from potable reuse treatment trains. | 7/28/2021 12:07 PM |

## Q19 What additional informational resources would be helpful to you in your communications in addressing CECs including pharmaceuticals in recycled water? Please check all that apply.

Answered: 86 Skipped: 13

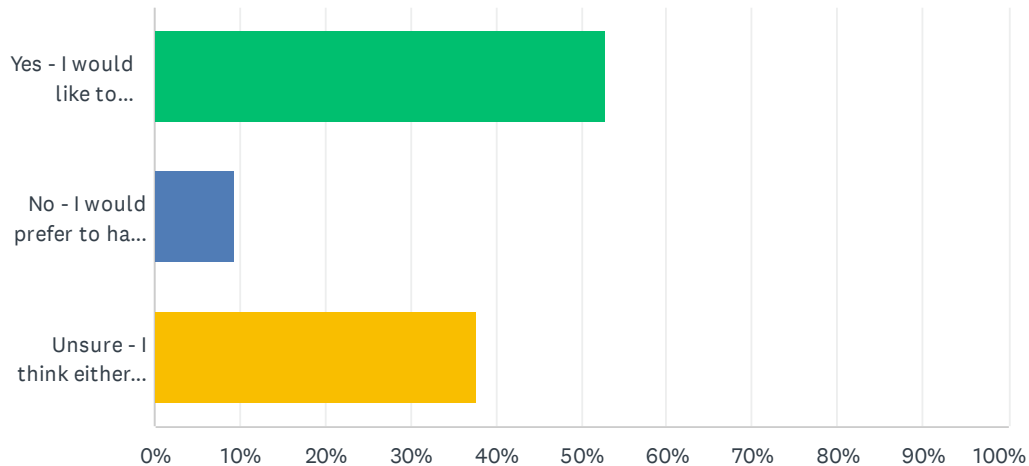


| ANSWER CHOICES                                                       | RESPONSES |    |
|----------------------------------------------------------------------|-----------|----|
| Data and statistics                                                  | 79.07%    | 68 |
| Storytelling information                                             | 44.19%    | 38 |
| Case studies                                                         | 50.00%    | 43 |
| FAQs                                                                 | 55.81%    | 48 |
| Local information about pharmaceutical takeback and disposal options | 44.19%    | 38 |
| None. I have all the resources I need.                               | 9.30%     | 8  |
| Other (please specify)                                               | 2.33%     | 2  |
| Total Respondents: 86                                                |           |    |

| # | OTHER (PLEASE SPECIFY)                                                                                                                                                                                                                                                                                                                                                                                                                                                          | DATE               |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1 | Peer-reviewed scientific studies                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8/19/2021 8:59 AM  |
| 2 | We need the Water Research Foundation to conduct a study like: Risk Assessment Study of Pharmaceuticals and Personal Care Products in Non-potable Recycled Water to Support Public Review - WRF 09-07 But with a focus on IPR/DPR treatment trains and what constituents (CECs) may be remaining and in what amounts. It needs to be in laypersons terms for the benefit of public affairs and outreach professionals to use in communities considering potable reuse projects. | 7/28/2021 12:07 PM |

## Q20 Would you prefer that the collateral resources listed above be in a format where it could be customized with your organization name, logo, etc.?

Answered: 85 Skipped: 14



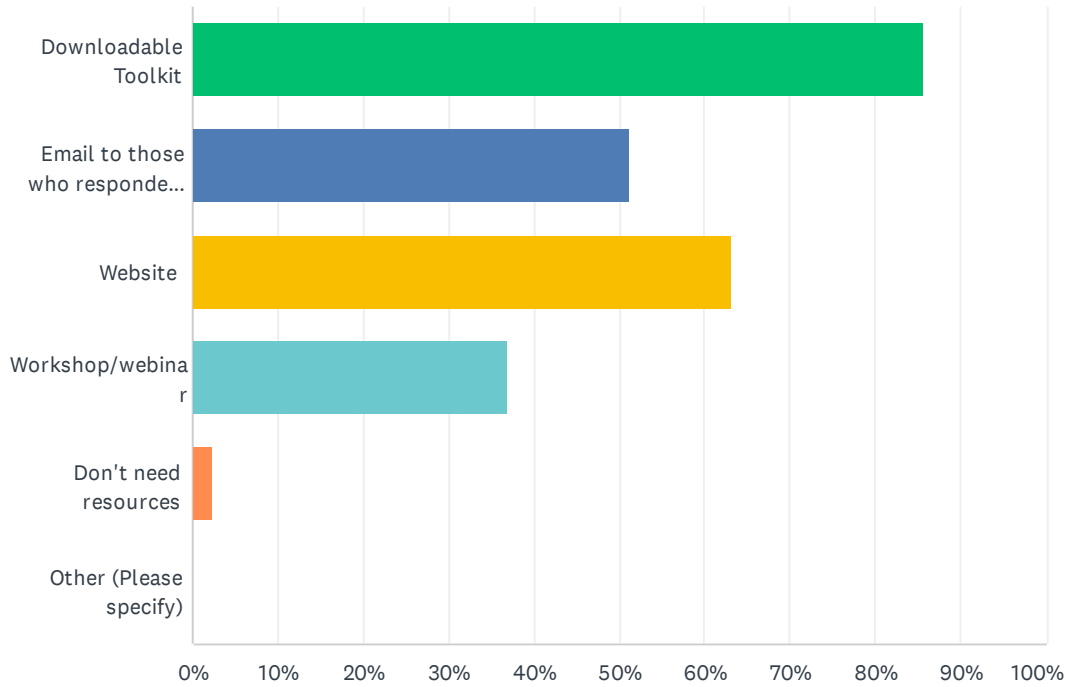
| ANSWER CHOICES                                                       |  | RESPONSES |    |
|----------------------------------------------------------------------|--|-----------|----|
| Yes - I would like to customize these resources for my organization. |  | 52.94%    | 45 |
| No - I would prefer to have resources that are ready to use.         |  | 9.41%     | 8  |
| Unsure - I think either way would work.                              |  | 37.65%    | 32 |
| TOTAL                                                                |  |           | 85 |

| # | ANY COMMENTS?                                                                                                                                                                   | DATE               |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1 | I will take either, but it is nice if we can add our logo and contact info to final brochures/resources, etc.                                                                   | 8/20/2021 7:09 AM  |
| 2 | And that of our Partner jurisdictions.                                                                                                                                          | 8/18/2021 2:44 PM  |
| 3 | Depending on the level of detail of the collateral provided, we might take the portions of the collateral that best fit our needs and use for inspiration in our own materials. | 7/26/2021 12:59 PM |



## Q21 How would you prefer to receive any informational and collateral resources? Please check all that apply.

Answered: 84 Skipped: 15



| ANSWER CHOICES                                                          |  | RESPONSES |    |
|-------------------------------------------------------------------------|--|-----------|----|
| Downloadable Toolkit                                                    |  | 85.71%    | 72 |
| Email to those who responded to survey and provided contact information |  | 51.19%    | 43 |
| Website                                                                 |  | 63.10%    | 53 |
| Workshop/webinar                                                        |  | 36.90%    | 31 |
| Don't need resources                                                    |  | 2.38%     | 2  |
| Other (Please specify)                                                  |  | 0.00%     | 0  |
| Total Respondents: 84                                                   |  |           |    |

| # | OTHER (PLEASE SPECIFY)  | DATE |
|---|-------------------------|------|
|   | There are no responses. |      |

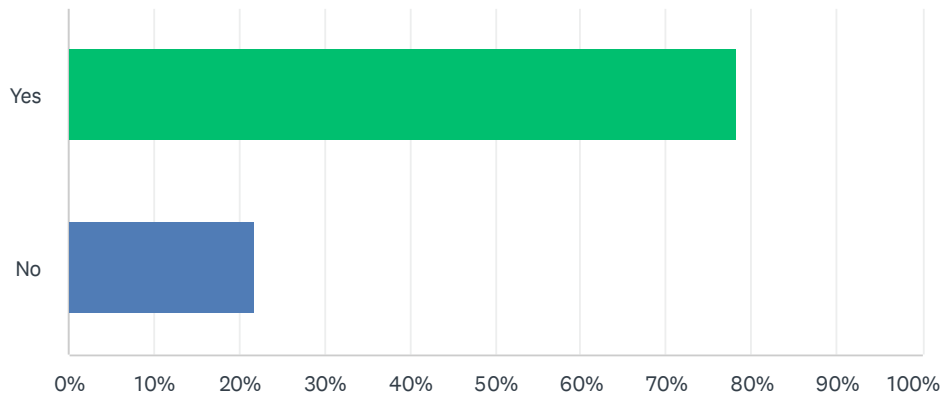
## Q22 Do you have any additional comments?

Answered: 15 Skipped: 84

| #  | RESPONSES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | DATE               |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1  | No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8/30/2021 12:00 PM |
| 2  | The amount of information available from peer-reviewed studies pales in comparison to that available via google.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8/26/2021 3:47 PM  |
| 3  | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8/19/2021 9:12 AM  |
| 4  | It sometimes feels like the CECs issue is swept under the carpet when talking about potable reuse - we still lack information on so many aspects of this topic, and many engineers treat this lack of information in a "no news is good news" sort of way. They act only on the information available without acknowledging that we have imperfect information and that the situation may require use of additional safety factors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8/17/2021 9:52 AM  |
| 5  | I am new to our organization and would like to bolster our communications regarding this topic. Excited about the potential resources that may be made available!                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 8/17/2021 8:05 AM  |
| 6  | Most members of the public will not need details about trace chemicals that are difficult to remove. For those that do, however, I believe its important to have talking points and tools that explain chronic verses acute illness, and relative exposure from water verses food and other sources (e.g. PFAS). It would also be helpful to explain how public health limits are set. We can never say that water is absolutely purified and so this dialogue and understanding is important, more so than trying to assure the public that water treatment fully removes all chemicals (which isn't an accurate statement nor acceptable by DDW). I don't recommend presenting graphics to any audience or too much dialogue because the message can get confusing, especially as there may be limited time for larger groups. In the same vein, I believe combining dialogue about how consumers can dispose of pharmaceuticals on their own may decrease their confidence in our management system (if adding this in the context of potable reuse - but this should be included in wastewater management discussions). | 8/17/2021 7:26 AM  |
| 7  | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8/16/2021 5:51 PM  |
| 8  | Communication tools will be beneficial to use in a couple years pending the results of our DPR pilot study.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8/13/2021 9:18 AM  |
| 9  | I would attend a workshop that covered the high-level science behind CECs and pharmaceuticals and focused on how to communicate about them with the general public                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8/9/2021 8:46 AM   |
| 10 | The question of CECs is only applicable to potable reuse and potable reuse appears to be in Florida's future.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8/7/2021 12:34 PM  |
| 11 | I am not the Communications person at the district, but like to provide the information to our publicist                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 8/4/2021 12:37 PM  |
| 12 | Great program! Much needed and will be greatly appreciated beyond California!                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8/4/2021 6:16 AM   |
| 13 | It would also be helpful to have studies cited that address the concern of pharmaceuticals and CECs in recycled & purified water. In some focus groups we conducted earlier this year, many participants said they would feel more comfortable about the safety of purified water if they knew there were scientific and academic studies backing up the claims.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8/3/2021 11:19 AM  |
| 14 | Thank you for conducting this survey, we work in several communities around the country and I can tell you new tools regarding this topic are severely needed and have been for quite some time. The lack of this information is effecting leadership decisions and public acceptance in communities struggling to evaluate potable reuse water supply alternatives.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7/28/2021 12:11 PM |
| 15 | No, thank you.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7/26/2021 12:52 PM |

Q23 May we contact you if we have additional questions?

Answered: 83    Skipped: 16



| ANSWER CHOICES |  | RESPONSES |    |
|----------------|--|-----------|----|
| Yes            |  | 78.31%    | 65 |
| No             |  | 21.69%    | 18 |
| TOTAL          |  |           | 83 |

## Q24 Please provide your name and contact information.

Answered: 70   Skipped: 29

| ANSWER CHOICES  | RESPONSES |    |
|-----------------|-----------|----|
| Name            | 98.57%    | 69 |
| Organization    | 95.71%    | 67 |
| Address         | 0.00%     | 0  |
| Address 2       | 0.00%     | 0  |
| City/Town       | 0.00%     | 0  |
| State/Province  | 0.00%     | 0  |
| ZIP/Postal Code | 0.00%     | 0  |
| Country         | 0.00%     | 0  |
| Email Address   | 100.00%   | 70 |
| Phone Number    | 87.14%    | 61 |

| #  | NAME                 | DATE               |
|----|----------------------|--------------------|
| 1  | Erik Desormeaux      | 8/30/2021 12:00 PM |
| 2  | Paul Ebert           | 8/27/2021 2:12 PM  |
| 3  | Damian Higham        | 8/26/2021 3:47 PM  |
| 4  | katie Greenwood      | 8/25/2021 2:06 PM  |
| 5  | Wendy Steffensen     | 8/23/2021 9:08 AM  |
| 6  | Tammy Yates West     | 8/23/2021 5:48 AM  |
| 7  | Tara Bravo           | 8/22/2021 12:52 PM |
| 8  | Jimmy Pridgen        | 8/20/2021 7:10 AM  |
| 9  | Kerri H. Cope        | 8/19/2021 3:17 PM  |
| 10 | Mike Martin          | 8/19/2021 9:13 AM  |
| 11 | Jay R. Snyder        | 8/19/2021 9:12 AM  |
| 12 | Jason Siegert        | 8/19/2021 7:45 AM  |
| 13 | Jolene Montoya       | 8/19/2021 7:12 AM  |
| 14 | Deborah DeBiasi      | 8/18/2021 4:16 PM  |
| 15 | Caroline Scruggs     | 8/17/2021 9:52 AM  |
| 16 | Sean Peterson        | 8/17/2021 9:30 AM  |
| 17 | Julie Ridgeway       | 8/17/2021 8:05 AM  |
| 18 | Yoshiko Tsunehara    | 8/17/2021 7:26 AM  |
| 19 | Bob (Robert) Vincent | 8/17/2021 6:44 AM  |
| 20 | Jim Dobrowolski      | 8/16/2021 8:07 PM  |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                             |                   |
|----|-----------------------------|-------------------|
| 21 | Riki Clark                  | 8/16/2021 7:26 PM |
| 22 | Gina Dorrington             | 8/16/2021 6:01 PM |
| 23 | Val S. Frenkel              | 8/16/2021 5:51 PM |
| 24 | Natalie Croak               | 8/16/2021 5:16 PM |
| 25 | Tania McMillan              | 8/13/2021 9:18 AM |
| 26 | Lea Blevins                 | 8/12/2021 2:53 PM |
| 27 | Lisa Thompson               | 8/10/2021 1:24 PM |
| 28 | Randy Brown                 | 8/10/2021 9:09 AM |
| 29 | Stacy Taylor                | 8/9/2021 10:56 AM |
| 30 | Jennifer Swart              | 8/9/2021 8:46 AM  |
| 31 | David Ammerman              | 8/7/2021 12:34 PM |
| 32 | Gabriela Dow                | 8/4/2021 8:34 PM  |
| 33 | Jennifer Ribotti            | 8/4/2021 1:20 PM  |
| 34 | Soleil Develle              | 8/4/2021 12:37 PM |
| 35 | Baylie Martinez             | 8/4/2021 12:35 PM |
| 36 | Chuck Weber                 | 8/4/2021 10:38 AM |
| 37 | amy                         | 8/4/2021 9:03 AM  |
| 38 | John J. Keane               | 8/4/2021 8:02 AM  |
| 39 | Bart Weiss                  | 8/4/2021 6:16 AM  |
| 40 | Lucille M Bean              | 8/3/2021 6:04 PM  |
| 41 | Lydia Peri                  | 8/3/2021 3:10 PM  |
| 42 | Ramesh SINGH                | 8/3/2021 2:49 PM  |
| 43 | Roberta Nunes               | 8/3/2021 2:29 PM  |
| 44 | Jeff Adams                  | 8/3/2021 2:26 PM  |
| 45 | Michael Saxton              | 8/3/2021 1:49 PM  |
| 46 | Gina Adriano                | 8/3/2021 11:19 AM |
| 47 | Lizeth Martinez             | 8/2/2021 12:39 PM |
| 48 | Benjamin Glickstein         | 8/2/2021 8:46 AM  |
| 49 | Rupam Soni                  | 7/31/2021 7:04 PM |
| 50 | John Kmiec                  | 7/30/2021 7:39 AM |
| 51 | Jeff Prevatt                | 7/30/2021 7:31 AM |
| 52 | Paul Westerhoff             | 7/29/2021 4:16 PM |
| 53 | Steve Camp                  | 7/29/2021 3:51 PM |
| 54 | CHRISTINA D. MONTOYA-HALTER | 7/29/2021 2:06 PM |
| 55 | Todd Miller                 | 7/29/2021 1:19 PM |
| 56 | David R Morris              | 7/29/2021 8:40 AM |
| 57 | Adrian Edwards              | 7/29/2021 6:31 AM |
| 58 | Jackie Sherry               | 7/29/2021 5:16 AM |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

| 59 | Daniel C Fischer                          | 7/28/2021 4:47 PM  |
|----|-------------------------------------------|--------------------|
| 60 | Mark Millan                               | 7/28/2021 12:11 PM |
| 61 | Melissa McChesney                         | 7/28/2021 9:23 AM  |
| 62 | Bruce E Coyle                             | 7/28/2021 6:24 AM  |
| 63 | Danny Johnson                             | 7/27/2021 2:13 PM  |
| 64 | Jeffery M. Stecker                        | 7/27/2021 10:10 AM |
| 65 | Jennifer Kaiser                           | 7/27/2021 9:07 AM  |
| 66 | Mike McNutt                               | 7/26/2021 2:07 PM  |
| 67 | Emily Barnett                             | 7/26/2021 1:11 PM  |
| 68 | Bryan Langpap                             | 7/26/2021 1:00 PM  |
| 69 | Laura Romano                              | 7/26/2021 12:52 PM |
| #  | ORGANIZATION                              | DATE               |
| 1  | Jacobs                                    | 8/30/2021 12:00 PM |
| 2  | Des Moines Metropolitan WRA               | 8/27/2021 2:12 PM  |
| 3  | Denver Water                              | 8/26/2021 3:47 PM  |
| 4  | SOCWA                                     | 8/25/2021 2:06 PM  |
| 5  | LOTT Clean Water Alliance                 | 8/23/2021 9:08 AM  |
| 6  | Cit of Austin Austin Water                | 8/23/2021 5:48 AM  |
| 7  | CV Strategies                             | 8/22/2021 12:52 PM |
| 8  | City of Wilson                            | 8/20/2021 7:10 AM  |
| 9  | Oregon Water Resources Department         | 8/19/2021 3:17 PM  |
| 10 | HRSD                                      | 8/19/2021 9:13 AM  |
| 11 | Borough of Ephrata                        | 8/19/2021 9:12 AM  |
| 12 | City of Thousand Oaks                     | 8/19/2021 7:45 AM  |
| 13 | City of Flagstaff                         | 8/19/2021 7:12 AM  |
| 14 | Virginia DEQ                              | 8/18/2021 4:16 PM  |
| 15 | UNM                                       | 8/17/2021 9:52 AM  |
| 16 | Olivenhain MWD                            | 8/17/2021 9:30 AM  |
| 17 | City of San Luis Obispo                   | 8/17/2021 8:05 AM  |
| 18 | Los Angeles Department of Water and Power | 8/17/2021 7:26 AM  |
| 19 | Florida Dept. of Health                   | 8/17/2021 6:44 AM  |
| 20 | USDA-NIFA                                 | 8/16/2021 8:07 PM  |
| 21 | Las Virgenes Municipal Water District     | 8/16/2021 7:26 PM  |
| 22 | Ventura Water                             | 8/16/2021 6:01 PM  |
| 23 | GREELEY and HANSEN                        | 8/16/2021 5:51 PM  |
| 24 | City of Livermore                         | 8/16/2021 5:16 PM  |
| 25 | Polk County Utilities                     | 8/13/2021 9:18 AM  |
| 26 | Dublin San Ramon Services District        | 8/12/2021 2:53 PM  |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                                                    |                    |
|----|----------------------------------------------------|--------------------|
| 27 | Regional San                                       | 8/10/2021 1:24 PM  |
| 28 | City of Pompano Beach                              | 8/10/2021 9:09 AM  |
| 29 | Mesa Water District                                | 8/9/2021 10:56 AM  |
| 30 | Water Replenishment District                       | 8/9/2021 8:46 AM   |
| 31 | City of Altamonte Springs                          | 8/7/2021 12:34 PM  |
| 32 | NV5                                                | 8/4/2021 8:34 PM   |
| 33 | Tetra Tech                                         | 8/4/2021 1:20 PM   |
| 34 | Fallbrook PUD                                      | 8/4/2021 12:37 PM  |
| 35 | City of Ventura                                    | 8/4/2021 12:35 PM  |
| 36 | Tampa Water Dept                                   | 8/4/2021 10:38 AM  |
| 37 | west basin municipal water district                | 8/4/2021 9:03 AM   |
| 38 | Plummer Associates                                 | 8/4/2021 8:02 AM   |
| 39 | Hillsborough County, FL                            | 8/4/2021 6:16 AM   |
| 40 | Truckee Meadows Water Authority                    | 8/3/2021 3:10 PM   |
| 41 | Chapman University                                 | 8/3/2021 2:49 PM   |
| 42 | University of Cincinnati                           | 8/3/2021 2:29 PM   |
| 43 | SWFWMD                                             | 8/3/2021 2:26 PM   |
| 44 | Tetra Tech                                         | 8/3/2021 1:49 PM   |
| 45 | Valley Water                                       | 8/3/2021 11:19 AM  |
| 46 | Metropolitan Water District                        | 8/2/2021 12:39 PM  |
| 47 | EBMUD                                              | 8/2/2021 8:46 AM   |
| 48 | Metropolitan Water District of Southern California | 7/31/2021 7:04 PM  |
| 49 | Tucson Water                                       | 7/30/2021 7:39 AM  |
| 50 | Pima County RWRD                                   | 7/30/2021 7:31 AM  |
| 51 | Arizona State University                           | 7/29/2021 4:16 PM  |
| 52 | City of Flagstaff                                  | 7/29/2021 3:51 PM  |
| 53 | City of Springfield/MWMC                           | 7/29/2021 1:19 PM  |
| 54 | ABQ Bern. Co. Water Authority                      | 7/29/2021 8:40 AM  |
| 55 | City of Henderson                                  | 7/29/2021 6:31 AM  |
| 56 | Athens-Clarke County Public Utilities              | 7/29/2021 5:16 AM  |
| 57 | Clark County Water Reclamation District            | 7/28/2021 4:47 PM  |
| 58 | Data Instincts, Public Outreach Consultants        | 7/28/2021 12:11 PM |
| 59 | Padre Dam Municipal Water District                 | 7/28/2021 9:23 AM  |
| 60 | Paulding County                                    | 7/28/2021 6:24 AM  |
| 61 | Metropolitan North Georgia Water Planning District | 7/27/2021 2:13 PM  |
| 62 | Leucadia Wastewater District                       | 7/27/2021 10:10 AM |
| 63 | Vallejo Flood & Wastewater District                | 7/27/2021 9:07 AM  |
| 64 | Las Virgenes Municipal Water District              | 7/26/2021 2:07 PM  |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

| 65 | Central Contra Costa Sanitary District  | 7/26/2021 1:11 PM  |
|----|-----------------------------------------|--------------------|
| 66 | Los Angeles County Sanitation Districts | 7/26/2021 1:00 PM  |
| 67 | Goleta Sanitary District                | 7/26/2021 12:52 PM |
| #  | ADDRESS                                 | DATE               |
|    | There are no responses.                 |                    |
| #  | ADDRESS 2                               | DATE               |
|    | There are no responses.                 |                    |
| #  | CITY/TOWN                               | DATE               |
|    | There are no responses.                 |                    |
| #  | STATE/PROVINCE                          | DATE               |
|    | There are no responses.                 |                    |
| #  | ZIP/POSTAL CODE                         | DATE               |
|    | There are no responses.                 |                    |
| #  | COUNTRY                                 | DATE               |
|    | There are no responses.                 |                    |
| #  | EMAIL ADDRESS                           | DATE               |
| 1  | erik.desormeaux@jacobs.com              | 8/30/2021 12:00 PM |
| 2  | pcebert@dmgov.org                       | 8/27/2021 2:12 PM  |
| 3  | damian.higham@denverwater.org           | 8/26/2021 3:47 PM  |
| 4  | Kgreenwood@socwa.com                    | 8/25/2021 2:06 PM  |
| 5  | wendysteffensen@lottcleanwater.org      | 8/23/2021 9:08 AM  |
| 6  | tammy.yates.west@austintexas.gov        | 8/23/2021 5:48 AM  |
| 7  | tara@cvstrat.com                        | 8/22/2021 12:52 PM |
| 8  | jpridgen@wilsonnc.org                   | 8/20/2021 7:10 AM  |
| 9  | Kerri.H.Cope@oregon.gov                 | 8/19/2021 3:17 PM  |
| 10 | mmartin@hrsd.com                        | 8/19/2021 9:13 AM  |
| 11 | jsnyder@ephrataboro.org                 | 8/19/2021 9:12 AM  |
| 12 | jsiegert@toaks.org                      | 8/19/2021 7:45 AM  |
| 13 | jolene.montoya@flagstaffaz.gov          | 8/19/2021 7:12 AM  |
| 14 | deborah.debiasi@deq.virginia.gov        | 8/18/2021 4:16 PM  |
| 15 | cscruggs@unm.edu                        | 8/17/2021 9:52 AM  |
| 16 | speterson@olivenhain.com                | 8/17/2021 9:30 AM  |
| 17 | jridgewa@slocity.org                    | 8/17/2021 8:05 AM  |
| 18 | yoshiko.tsunehara@ladwp.com             | 8/17/2021 7:26 AM  |
| 19 | bob.vincent@flhealth.gov                | 8/17/2021 6:44 AM  |
| 20 | james.dobrowolski@usda.gov              | 8/16/2021 8:07 PM  |
| 21 | mnazar@umd.edu                          | 8/16/2021 7:56 PM  |
| 22 | rclark@lvmwd.com                        | 8/16/2021 7:26 PM  |
| 23 | gdorrington@cityofventura.ca.gov        | 8/16/2021 6:01 PM  |



## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                                    |                    |
|----|------------------------------------|--------------------|
| 24 | vfrenkel@greeley-hansen.com        | 8/16/2021 5:51 PM  |
| 25 | nlcroak@cityoflivermore.net        | 8/16/2021 5:16 PM  |
| 26 | taniamcmillan@polk-county.net      | 8/13/2021 9:18 AM  |
| 27 | blevins@dsrsd.com                  | 8/12/2021 2:53 PM  |
| 28 | thompsonlis@sacsewer.com           | 8/10/2021 1:24 PM  |
| 29 | randolph.brown@copbfl.com          | 8/10/2021 9:09 AM  |
| 30 | StacyT@MesaWater.org               | 8/9/2021 10:56 AM  |
| 31 | jswart@wrđ.org                     | 8/9/2021 8:46 AM   |
| 32 | dammerman@altamonte.org            | 8/7/2021 12:34 PM  |
| 33 | gabriela.dow@nv5.com               | 8/4/2021 8:34 PM   |
| 34 | jennifer.ribotti@tetratēch.com     | 8/4/2021 1:20 PM   |
| 35 | soleil@fpud.com                    | 8/4/2021 12:37 PM  |
| 36 | bmartinez@cityofventura.ca.gov     | 8/4/2021 12:35 PM  |
| 37 | chuck.weber@tampagov.net           | 8/4/2021 10:38 AM  |
| 38 | amyr@westbasin.org                 | 8/4/2021 9:03 AM   |
| 39 | jkeane@plummer.com                 | 8/4/2021 8:02 AM   |
| 40 | weisst@hillsboroughcounty.org      | 8/4/2021 6:16 AM   |
| 41 | lenardhile6278@gmail.com           | 8/3/2021 6:04 PM   |
| 42 | lperi@tmwa.com                     | 8/3/2021 3:10 PM   |
| 43 | rsingh@chapman.edu                 | 8/3/2021 2:49 PM   |
| 44 | robertafrinhani@usp.br             | 8/3/2021 2:29 PM   |
| 45 | jadams@abbeyadams.com              | 8/3/2021 2:26 PM   |
| 46 | michael.saxton@tetratēch.com       | 8/3/2021 1:49 PM   |
| 47 | gadriano@valleywater.org           | 8/3/2021 11:19 AM  |
| 48 | lmartinez@mwdh2o.com               | 8/2/2021 12:39 PM  |
| 49 | ben.glickstein@ebmud.com           | 8/2/2021 8:46 AM   |
| 50 | rsoni@mwdh2o.com                   | 7/31/2021 7:04 PM  |
| 51 | john.kmiec@tucsonaz.gov            | 7/30/2021 7:39 AM  |
| 52 | jeff.prevatt@pima.gov              | 7/30/2021 7:31 AM  |
| 53 | p.westerhoff@asu.edu               | 7/29/2021 4:16 PM  |
| 54 | scamp@flagstaffaz.gov              | 7/29/2021 3:51 PM  |
| 55 | cmontoya@epwater.org               | 7/29/2021 2:06 PM  |
| 56 | tmiller@springfield-or.gov         | 7/29/2021 1:19 PM  |
| 57 | dmorris@abcwua.org                 | 7/29/2021 8:40 AM  |
| 58 | adrian.edwards@cityofhenderson.com | 7/29/2021 6:31 AM  |
| 59 | jackie.sherry@accgov.com           | 7/29/2021 5:16 AM  |
| 60 | dfischer@cleanwaterteam.com        | 7/28/2021 4:47 PM  |
| 61 | millan@datainstincts.com           | 7/28/2021 12:11 PM |

## Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

| 62 | mmcchesney@padre.org          | 7/28/2021 9:23 AM  |
|----|-------------------------------|--------------------|
| 63 | bcoyle@paulding.gov           | 7/28/2021 6:24 AM  |
| 64 | djohnson@atlantaregional.org  | 7/27/2021 2:13 PM  |
| 65 | jstecker@lwwd.org             | 7/27/2021 10:10 AM |
| 66 | jkaiser@vallejowastewater.org | 7/27/2021 9:07 AM  |
| 67 | mmcnutt@lvmwd.com             | 7/26/2021 2:07 PM  |
| 68 | ebarnett@centralsan.org       | 7/26/2021 1:11 PM  |
| 69 | blangpap@lacsds.org           | 7/26/2021 1:00 PM  |
| 70 | lromano@goletasanitary.org    | 7/26/2021 12:52 PM |
| #  | PHONE NUMBER                  | DATE               |
| 1  | 15106485767                   | 8/30/2021 12:00 PM |
| 2  | 515-323-8133                  | 8/27/2021 2:12 PM  |
| 3  | 3036286537                    | 8/26/2021 3:47 PM  |
| 4  | 19492345412                   | 8/25/2021 2:06 PM  |
| 5  | 13604410158                   | 8/23/2021 9:08 AM  |
| 6  | 15126361670                   | 8/23/2021 5:48 AM  |
| 7  | 5103005843                    | 8/22/2021 12:52 PM |
| 8  | 2523992491                    | 8/20/2021 7:10 AM  |
| 9  | 503-979-9544                  | 8/19/2021 3:17 PM  |
| 10 | 7574607039                    | 8/19/2021 9:13 AM  |
| 11 | 17177389282                   | 8/19/2021 9:12 AM  |
| 12 | 805-491-8175                  | 8/19/2021 7:45 AM  |
| 13 | 19282132117                   | 8/19/2021 7:12 AM  |
| 14 | 804-704-1780                  | 8/18/2021 4:16 PM  |
| 15 | 7604200687                    | 8/17/2021 9:30 AM  |
| 16 | 8057817508                    | 8/17/2021 8:05 AM  |
| 17 | (213) 523-0394                | 8/17/2021 7:26 AM  |
| 18 | 8502454578                    | 8/17/2021 6:44 AM  |
| 19 | 2029069185                    | 8/16/2021 8:07 PM  |
| 20 | 8182512129                    | 8/16/2021 7:26 PM  |
| 21 | 8052233053                    | 8/16/2021 6:01 PM  |
| 22 | 4154121380                    | 8/16/2021 5:51 PM  |
| 23 | 9259608144                    | 8/16/2021 5:16 PM  |
| 24 | 9258752294                    | 8/12/2021 2:53 PM  |
| 25 | 9545457043                    | 8/10/2021 9:09 AM  |
| 26 | (714) 791-0848                | 8/9/2021 10:56 AM  |
| 27 | 3109030663                    | 8/9/2021 8:46 AM   |
| 28 | 4075718712                    | 8/7/2021 12:34 PM  |

# Survey: Communicating About Pharmaceutical and CEC Management in Recycled Water

|    |                   |                    |
|----|-------------------|--------------------|
| 29 | 858-735-2922      | 8/4/2021 8:34 PM   |
| 30 | 17609992717       | 8/4/2021 12:37 PM  |
| 31 | 8056774149        | 8/4/2021 12:35 PM  |
| 32 | 8134803159        | 8/4/2021 10:38 AM  |
| 33 | 3053941879        | 8/4/2021 8:02 AM   |
| 34 | 8132945805        | 8/4/2021 6:16 AM   |
| 35 | 979-253-9653      | 8/3/2021 6:04 PM   |
| 36 | 7758340247        | 8/3/2021 3:10 PM   |
| 37 | 9496797645        | 8/3/2021 2:49 PM   |
| 38 | 5134938103        | 8/3/2021 2:29 PM   |
| 39 | 4087816972        | 8/3/2021 11:19 AM  |
| 40 | 6268270614        | 8/2/2021 12:39 PM  |
| 41 | 5106710571        | 8/2/2021 8:46 AM   |
| 42 | 213-217-7262      | 7/31/2021 7:04 PM  |
| 43 | 5208372088        | 7/30/2021 7:39 AM  |
| 44 | 520-724-6060      | 7/30/2021 7:31 AM  |
| 45 | 4809652885        | 7/29/2021 4:16 PM  |
| 46 | 19282132475       | 7/29/2021 3:51 PM  |
| 47 | 915-594-5596      | 7/29/2021 2:06 PM  |
| 48 | 541-736-7137      | 7/29/2021 1:19 PM  |
| 49 | 5052893111        | 7/29/2021 8:40 AM  |
| 50 | 7022672728        | 7/29/2021 6:31 AM  |
| 51 | 7026688455        | 7/28/2021 4:47 PM  |
| 52 | 707 756-0366      | 7/28/2021 12:11 PM |
| 53 | 6192584680        | 7/28/2021 9:23 AM  |
| 54 | 16782244090       | 7/28/2021 6:24 AM  |
| 55 | 4046832003        | 7/27/2021 2:13 PM  |
| 56 | 7607530155        | 7/27/2021 10:10 AM |
| 57 | 17076527812       | 7/27/2021 9:07 AM  |
| 58 | 818-251-2124      | 7/26/2021 2:07 PM  |
| 59 | 9252297310        | 7/26/2021 1:11 PM  |
| 60 | 562-908-4288x2302 | 7/26/2021 1:00 PM  |
| 61 | 8059674519128     | 7/26/2021 12:52 PM |