



The voice for water consumers
Llais defnyddwyr dŵr

Sink sense: Kitchen sink habits caught on camera

June 2021

Consumer research report
prepared by Blue Marble
Research Ltd



ccwater.org.uk

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LET'S GET SOME SINK SENSE

One of CCW's ambitions is to help people use less water to preserve water resources that are precious to us and the environment. Part of this is understanding consumers' behaviours and actions in relation to their water use at home. This innovative project showed us that there is a significant difference between what consumers tell us about their kitchen sink habits and what they actually do at the kitchen sink.



Dr. Mike Keil - Director of Policy, Research and Campaigning

We used motion-sensitive cameras to observe how 15 households in England and Wales use their kitchen sink. Specifically, to see how they use water and how they dispose of fats, oils and greases (FOGs).

Peoples' behaviour at the kitchen sink, especially how they use water, is often inconsistent with their environmental attitudes. They can be doing the 'right thing' for the environment in other ways, but don't consider their water use as part of this. There is some awareness that pouring FOGs down the drain is not 'good', but this tends to be when there has been some experience of the negative consequences of doing so.

The study found that consumers have difficulty in reporting their own kitchen sink behaviour, for reasons that include:

- The frequency and habitual nature of certain activities make them hard to recall
- Not understanding how much water they are using and what water volumes (e.g. litres) mean in reality,
- Household dynamics, not always knowing what other members of the household do
- Trying to put a positive spin on their behaviour.

Another key finding is the lack of awareness of the link between water use and the impact this has on the environment. As a result, consumers often do not see the need to reduce their water use because there is very limited understanding that water is scarce in some areas of the UK. The report suggests some particular areas that messaging should focus on if we hope to change peoples habits.

The findings of this project have wide ranging implications for communicators, water efficiency practitioners and researchers. Let's put these findings to work to get some sink sense in our lives.



Executive summary

OBSERVED BEHAVIOUR AT THE KITCHEN SINK

- 1** Water usage at the kitchen sink (of which washing up accounts for around two-thirds) appears closely linked to space in the kitchen, attitudes towards cleanliness, frequency of home cooking and washing up technique.
 - There appears to be a weak link between self-reported environmental friendliness and water efficiency.
 - Based on our small sample, kitchen sink water usage is only weakly correlated with household size, dishwasher access, the presence of a water meter or use of a washing up bowl.
- 2** Household water usage is complex.
 - Even at the kitchen sink – which accounts for far less household water usage than toilets, washing machines and showers – we observed a vast array of behaviours, which varied greatly between individuals and households. Individuals were also inconsistent, displaying a mix of “good” and “bad” behaviours across (and even within) specific individual activities.
- 3** Further research is needed to better understand household water usage.
 - Given the variation and inconsistency in observed behaviours, we anticipate that there is unlikely to be a close correlation between kitchen sink usage and overall household water usage.



[Click to play video](#)

ACCURACY OF RECALLED BEHAVIOUR



[Click to play video](#)

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Unsurprisingly, our observational research highlighted the significant discrepancy between what consumers tell us about their kitchen sink usage and what they actually do at the kitchen sink.

- The size of this discrepancy raises questions about relying solely on self-reported survey data to understand how consumers use water in their day-to-day lives.

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There are four main reasons why our participants did not accurately recall their household's water use:

- **Many participants found it very challenging to quantify their water use** – with low awareness of how much water specific behaviours use, and a limited understanding of what key quantities mean in practice (e.g. how much water 5 litres is).
- **The high frequency with which key behaviours happen and their role in subconscious daily routines mean that they are both harder to recall and to count.**
- **In some household dynamics, individual household members have less oversight of the whole household's behaviour** – meaning that they struggle to give accurate responses to questions about the whole household.
- **Many put a positive spin on “bad” behaviours**, or are in denial about behaviours which they know to be irresponsible.

THE IMPACT OF COVID-19 AND COMMUNICATIONS

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Although consumers are unsure what the future will look like, many COVID-related water-use changes were considered temporary:

- While hygiene behaviours increased after the Spring 2020 UK lockdown, some households told us that their hygiene habits were now closer to their pre-pandemic behaviour.
- There is a strong desire for many habits to “return to normal” – while households are currently spending more time cooking at home (which increases water-use) , many want to return to enjoying meals out once the pandemic is over.
- Working from home, home schooling and fewer days out have displaced much out-of-home water usage for the time being – some of these behaviours look likely to continue if there is more homeworking in the future.

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Many households were not aware that saving water was an environmentally friendly activity.

- Water efficiency is rarely considered when consumers think about climate change – indeed, most are unaware of the link between water usage and the environment. As a result, consumers often see no need to use less water: there is very limited understanding that water is scarce in some areas of the UK, and little knowledge of the other environmental effects of water use.

8

Consumers’ knowledge of what they should be doing at the kitchen sink is patchy – but even when consumers do have a strong understanding of what to do, this does not translate to actual behaviour because they do not understand why these “good” behaviours are necessary.

- Specifically in the context of the kitchen sink (where water is largely used for essential purposes such as cooking, hygiene and cleaning), awareness of how to save water appears very low – even those adopting “good” water use behaviours had rarely adopted these to save water.
- There is some awareness that pouring fats, oils and greases down the sink is not a good idea – but this is usually heavily dependent on first-hand experience of the consequences.

IMPLICATIONS FOR COMMUNICATORS | 1

The research indicates that the following steps are likely to be effective – although the effectiveness of each will need to be tested further.

A Use communications to link water efficiency challenges to the wider climate change narrative

- Outline why water efficiency is important in the UK – despite perceptions that it is a “wet” country
- Explain how reducing water consumption is linked to wider efforts to tackle climate change (rooting this in the UK context)
- This includes the wider environmental implications of water use, such as energy consumption and chemical use
- Clarify the scale of the likely future challenge.

B Build consumer understanding of the scale of household water use

- Bring to life how much water households use every day – for example, through a campaign which demonstrates average daily use in a memorable way (perhaps showing an equivalent quantity of water in bottles on a supermarket checkout or on a doorstep).
- Explain how much water is used by specific individual behaviours – e.g. that flushing the toilet once is the equivalent of consuming x glasses of water.

C Provide a small number of achievable targets for what “good” water use in the kitchen looks like

- Identify 3-4 “good” kitchen sink behaviours to prioritise – and develop simple water efficiency tips relating to these. Washing up should be the focus of this, as it accounts for the majority of water use in the kitchen – simple tips might include “put the plug in the sink while you wash up”, “don’t rinse plates before putting them in the dishwasher” or “saving your washing up and doing it 1-2 times a day will save x litres of water”.

IMPLICATIONS FOR COMMUNICATORS | 2

The research indicates that the following steps are likely to be effective – although the effectiveness of each will need to be tested further.

D

Focus communications on “teachable” moments in individual lives

- Habits around kitchen sink use are deep-rooted and often subconscious – with numerous hidden influences on behaviour.
- Communications which target consumers at key moments of change affecting water usage behaviours – such as when living away from home for the first time or when moving into a new house – are likely to have a greater chance of being effective.

E

Remind households of the consequences of pouring fat, oil and greases (FOGs) down the sink

- Households generally know that pouring FOGs down the sink is “bad” behaviour, so communications should be pushing at an open door. However, those with limited first-hand experience of sink blockages may have forgotten or ignore this. Explaining the consequences for individual households likely to be persuasive.

IMPLICATIONS FOR COMMUNICATORS | 3

F

Myth-bust around water usage

- Water usage at the kitchen sink is shaped by a series of myths or perceptions, including:
 - Crockery should be rinsed off before going in the dishwasher for a better clean/finish
 - Recycling must be rinsed out, otherwise it will be rejected.
 - Soap suds should be washed off from clean items to avoid soapy taste left on crockery
 - Washing up crockery in a washing up bowl means washing up with dirty water.

G

Myth-bust around FOGs

- We observed numerous misconceptions around FOG disposal – including:
 - Pouring small amounts of FOGs down the sink is ok – it is only when large amounts are disposed of in one go that problems occur.
 - Household detergents, hot water and washing up liquids will break down FOGs – so if left in the sink together prior to washing away, the risk of blockages is greatly reduced.
 - Cooking with low fat meat means that there is no need to worry about FOGs.

IMPLICATIONS FOR WATER EFFICIENCY PRACTITIONERS

Refine modelling assumptions, using observational research which identifies how consumers *actually* use water at home

- This research suggests that models based on reported behaviour or proxies (such as whether a household uses a washing up bowl) are inaccurate.
- Given the inconsistency that we observed in “good” and “bad” behaviours at the kitchen sink alone, it is likely that kitchen sink water use is only weakly correlated with overall household usage.
- Given the urgent need to reduce personal water use, further observational research is essential to understand other household water use behaviours (rather than relying on reported behaviour).

Understanding kitchen sink water usage specifically

Although conducted among a small sample, this research suggests that the best predictors of kitchen sink water use are factors such as:

- **attitudes to cleanliness** – how often households undertake key cleaning behaviours, such as wiping surfaces down and mopping floors, and whether they wash up “as they go” through the day or at set times (e.g. before / after dinner).
- **cooking behaviours** – how often households cook meals at home, and how often they cook these from scratch.
- **washing up technique** – whether individuals leave the tap running while they do the washing up and (to a lesser extent) whether they use a bowl / plug.
- **kitchen size** – whether dirty items can be left on the side while other activities take place in the kitchen, or need to be washed.
- **working status** as a proxy for time spent at home (incl. working from home).

Models which approximate households’ kitchen sink water use based on these are likely to be the most accurate. It will be essential to identify comparable factors shaping water usage at other household micro-components

IMPLICATIONS FOR RESEARCHERS

This research has demonstrated the power of observational research which makes use of modern technologies to understand hidden or subconscious behaviours. Even accounting for the potential for sample bias inherent in an approach which asks households to install a motion-sensitive camera in their kitchen, it seems clear that such methods can offer significant value in understanding consumers' water use.

Do

- Conduct further observational studies using larger sample sizes – to explore other water usage behaviours, across a wider range of households for longer periods of time.
- Ask questions about behaviours which are easy for consumers to recall and not subject to excessive social desirability bias, such as:
 - Factual questions (*Do you have a dishwasher? Yes/ no*)
 - Questions which focus on behaviours that occur relatively infrequently (*On average, how many times in a typical week do you cook your evening meal from scratch?*)
- Build sample frames which profile households based on the core criteria shaping water use, such as:
 - Working status as a proxy for time spent in home (including working from home)
 - Cooking behaviours
 - Washing up technique.

Don't

- Rely exclusively on reported behaviour when researching water use or FOG disposal – it is clear that this is often inaccurate and may bear little resemblance to the reality.
- Ask consumers to quantify their water use – quantities of water (whether expressed in volumes or time running taps) are relatively alien and meaningless concepts to many consumers, meaning that responses are likely to be inaccurate.
- Extrapolate from one person's response to the whole household – many household members are unaware of others' water use. This is particularly salient in households where household members may know each other less well (e.g. shared student households).

A photograph of a kitchen sink area. In the foreground, a stainless steel double-basin sink is visible. A chrome faucet is positioned over the right basin. To the left of the faucet, a white plastic container sits on the sink's edge. Behind the faucet, a metal dish rack holds various items, including a clear plastic bottle with a label that says "CARLING", a glass, and some cutlery. The background features light-colored wooden cabinets and a white tiled backsplash. A teal banner with white text is overlaid across the middle of the image.

Objectives and methodology

Research objectives

CCW commissioned this research to observe consumer behaviour at the kitchen sink, observing how they use water and how they dispose of fat, oils and greases (FOGs).

The specific research objectives were:

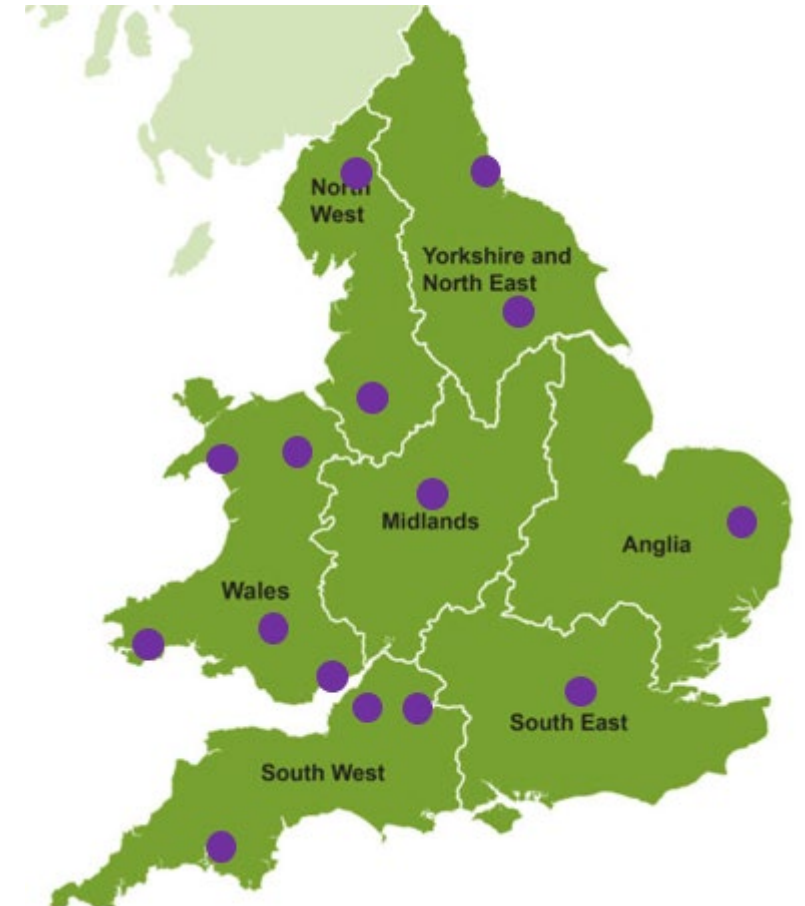
1. Validate or challenge existing evidence on self-reported behaviour and assess the dissonance between recalled and actual behaviour
2. Observe, through filming behaviour at the kitchen sink, both water usage and the disposal of FOGs
3. Explore whether water use is believed to have changed since Covid-19
4. Evaluate the water sector's current advice and communications



Research approach

Blue Marble installed video cameras next to the kitchen sinks of 15 households, to observe their kitchen sink behaviour over a period of 7 days.

- The sample was designed to be broadly reflective of household composition across England and Wales and designed to include a range of household types and profiles. We recruited the sample to a broad set of criteria – outlined in full in the appendix.
- The sample included 10 households from England and 5 households from Wales. They were geographically spread to allow for any regional differences, included a good mix of rural/urban/coastal locations and across water sector regions. See appendix for specific locations.
- Fieldwork took place between 25th January and 10th March 2021. During this time, England and Wales were in national lockdowns due to the COVID-19 pandemic.



Blue Marble conducted a short desk review prior to undertaking the primary research, to establish existing knowledge about water usage at the kitchen sink. The desk review highlighted that:

- The water sector is still largely reliant on recalled survey data for understanding water use.
- There are some examples of more innovative and ethnographic methodologies being used to understand water behaviour (e.g. a Bath University study about showering time) – but these have been relatively small-scale and conducted by bodies outside the water sector.
- Householders' perceptions of their water use, as well as their attitudes and intentions, are often not well matched with actual water use.
- Self-reported environmental consciousness does not necessarily correlate with water efficiency.
- Data specifically relating to the kitchen sink is limited. Research has begun to explore certain water usage behaviours e.g., filling/boiling a kettle, number of times households use a washing machine or dishwasher – but specific kitchen sink behaviours appear absent. This suggests there could be patterns of behaviour which are not yet known, or unsupported by research and evidence.

A more detailed summary of the findings can be found in the appendix.



Observed behaviour at the kitchen sink

Kitchen sink behaviour is complex

A very large number of micro-behaviours take place at the kitchen sink – from washing up, to filling water bottles, to rinsing recycling and defrosting food.

We observed significant variation in how individuals and households perform the same tasks, with important water efficiency implications. Whether individual behaviours could be seen as water efficient varies within households and even for individuals, depending on factors such as the time of day and stress levels.

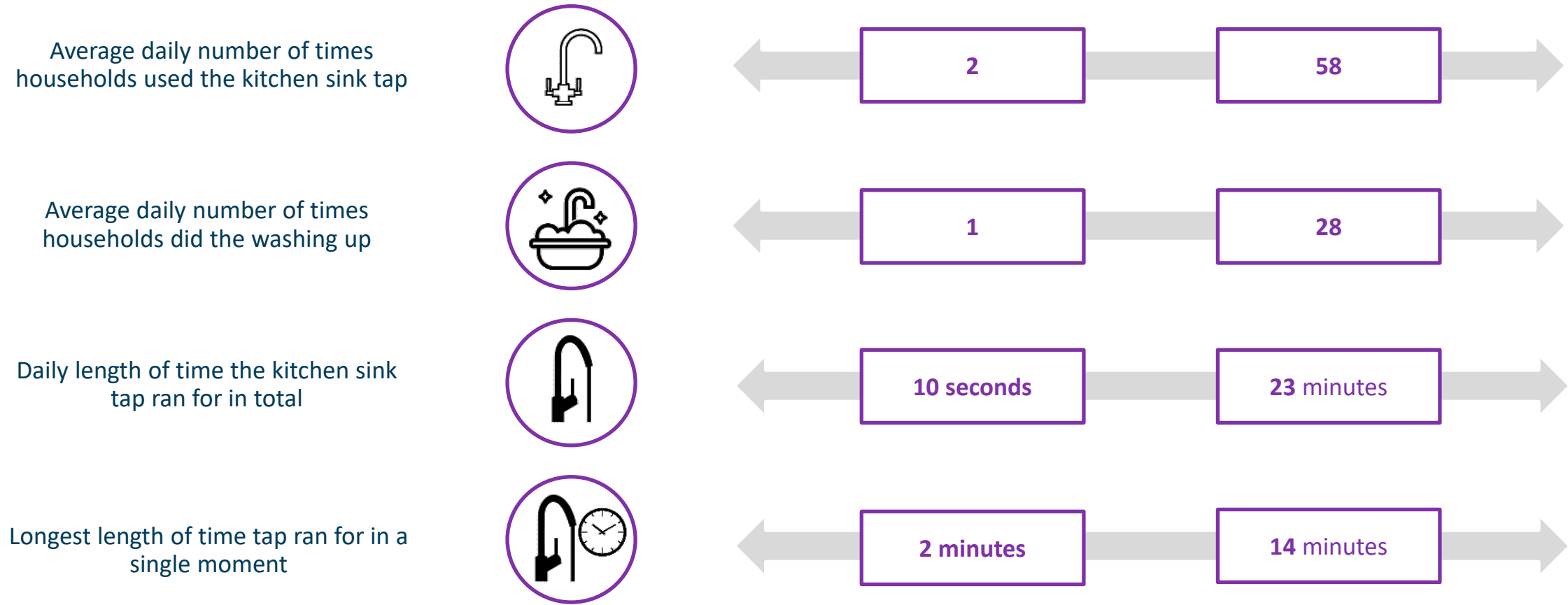
Individuals also often display a mix of “good” and “bad” behaviours for different activities.



This video highlights some of the behaviours that we observed

The variation in behaviours was large, even across our small sample

These examples indicate the variation of behaviours that we observed across our 15 households.



Practical factors, demographics, attitude and knowledge, and personal experience all affect kitchen sink water usage

1

Practical factors

- Time / effort
- Weekdays vs weekends
- Frequency of home cooking
- Kitchen-specific considerations – e.g. kitchen size and space available, time it takes for tap to run hot, size of sink
- Taste / quality of water
- Physical considerations around the use of washing up bowl / plug

2

Household composition and demographics

- Age / generation
- Household composition and life stage
- Socio-economic grade

3

Attitude and knowledge

- Cleanliness/ hygiene mindset
- Attitude towards waste
- Knowledge of the need to save water
- Knowledge of how to save water

4

Personal experience

- Techniques learned from friends / family (in long-term and often subconsciously)
- Previous living arrangements
- Direct familiarity with water scarcity
- Direct experience of FOG issues

Time and effort are crucial in shaping water usage at the kitchen sink, which also varies through the week

Time / effort

Key kitchen sink activities (particularly washing up) are usually chores, which consumers want to complete as quickly as possible. This is particularly true for certain types of households, such as families with young children and those in full-time work.

This can sometimes be positive for water efficiency – such as the couple who do all their washing up in one go, because they are “too lazy” to do it on the go through the day. Encouraging such “laziness” may be an effective tactic for behaviour change efforts.

“Neither of us feel like doing dishes after dinner. [...] I’m at work all day, I don’t really want to spend my lunchbreak doing dishes. I don’t really feel like I have time in the morning necessarily.”
Couple, no children

Weekdays vs weekends

Many households seem likely to use the kitchen sink more frequently at weekends. Above all, this is because households tend to cook more (or cook more elaborate meals, such as roast dinners) at the weekend – which requires more washing up. It can also lead to more FOG disposal events.

The weekday vs weekend distinction can be less salient for shift workers, those who are not working and the retired.

8 mins 0 seconds	Av. weekday kitchen tap running time
9 mins 40 seconds	Av. weekend day kitchen tap running time

Kitchen sink water usage is also closely linked to frequency of home cooking

Home cooking

Households where cooking activities were less frequent generally used less water at the kitchen sink – with households which look similar on paper often using very different amounts of water day-to-day, as highlighted by the case studies below.



Household 1: Christopher

- Aged 71
- Lives alone in a supported living complex

- Christopher does very little cooking day-to-day. He receives “Meals on Wheels” 5 days a week. This means he sometimes only washes up every few days.
- Before COVID-19 he used to enjoy having breakfast at a local café and Sunday lunch at a local pub once a week.
- His girlfriend visits once a week to deliver food shopping and do some cooking.
- He tends to drink coffee and warmed up milk meaning that his water consumption is relatively low.

Across the 7-day observation period, he used the kitchen sink tap an average of twice a day. The average kitchen tap running time each day was 10 seconds on weekdays.



Household 2: Imogen

- Aged 80
- Lives alone
- On a social tariff

- Imogen has lived alone for the last 17 years, since her husband died. She describes herself as “very sociable” and loved hosting dinner parties before COVID-19. She enjoys cooking and bakes on a regular basis – batch cooking for herself and giving food to older neighbours to help them through the pandemic.
- During the observation period, she tended to batch-cook once a day. She washes up as she goes – she told us that this is because she doesn’t like leaving the kitchen in a messy state.

Across the 7-day observation period, she used the kitchen sink tap an average of 15 times a day. The average kitchen tap running time each weekday was 7 minutes and 30 seconds.

Physical considerations about the kitchen, washing up bowls and taste also affect water use at the kitchen sink

Kitchen-specific considerations

The set-up of individual kitchen sinks and households also has a bearing on specific kitchen sink behaviours. Examples from our sample include:

- Those in small kitchens needing to make space for other activities in the rest of the kitchen, and so washing up frequently during the day.
- Those where it takes longer for the water to run hot (due to proximity to the boiler) using more water – as the colder water is not considered useful for activities such as washing up and therefore not used.

Taste / quality

For some, kitchen sink water usage (specifically in relation to drinking water) is linked to perceptions of the taste and quality of water. For example:

- Small minority do not use the kitchen tap as much because they drink only bottled water – saying that they prefer the taste
- Some told us that reboiled water tastes less good in hot drinks such as tea and coffee – so they empty and refill the kettle each time they boil it to make a hot drink.

Considerations around washing up bowls and plugs

For some, there are physical considerations around using a washing up bowl, such as:

- The shape or size of the sink making it awkward to fit an appropriately sized bowl (or having nowhere to put it when the bowl is not in use)
- Disliking the look of a washing up bowl.

Conversely, some told us that they use a bowl for practical reasons unrelated to water efficiency, including:

- Seeing a plastic bowl as good protection against accidentally breaking crockery.
 - It being smaller than their sink, so taking less time to fill up.
- We heard similar considerations around putting the plug in when washing up – with some households saying that they had lost the plug and never bothered to replace it, and others saying that they did not like the sight of seeing dirty water fill their basin.

However, the correlation between use of a bowl or plug and overall kitchen sink water usage was relatively weak.

Physical considerations about the kitchen, washing up bowls and taste also affect water use at the kitchen sink



[Click to play video](#)

Older participants displayed more water-efficient behaviours than younger

Generational differences

Within our small sample, there were stark differences between older and younger participants. We believe that this is due to a generational difference between those aged 70+ and younger generations – but this could also be driven by age.

In the initial interviews that we held with households, younger participants were much more likely than our older participants to talk to us about their environmental consciousness when prompted.

- In practice, however, this often did not translate into more water efficient behaviour. Indeed, some of the households who appeared to have the strongest environmental credentials in their reported behaviour were among the least water efficient households (based on kitchen sink behaviour alone).
- Older participants were more likely than younger participants to display water efficient behaviours. However, our conversations with these participants suggested that these behaviours were driven by a dislike of waste (in a general sense) rather than any specific environmental motivations.

“Younger generations, they don’t know how to use less of anything.”
Single person household, over 65 yrs.

Case study: Older generations and wastefulness

Imogen (80) displayed a series of water-efficient behaviours – including using a washing up bowl when doing the washing up.

When we asked her about why she used the washing up bowl, she told us that she did not like waste (in general). She did not consider using a bowl an environmentally friendly behaviour – she saw it primarily through the lens of avoiding waste. She pointed to avoiding waste in other areas of her life – including turning off light switches and making the most of leftover food.

These behaviours may of course be linked to an underlying sense of environmental responsibility – but this is often not explicit or seemingly conscious.

We did not observe evidence of a link between socio-economic grade or being on a water meter, and kitchen sink water use

Socio-economic grade

- Less affluent households on a water meter were not obviously cost-conscious in their water use. In interviews, some told us that water was relatively inexpensive compared to other household bills.
- More affluent households described having low awareness of cost around their household bills – and this is particularly true in water, which was seen as the cheapest of the utilities.

“We’re not bothered about reducing the [water] bill. We’re not mega rich so we should be more conscious.”
Family

Cost

We saw very little evidence of cost being a motivation to reduce water usage at the kitchen sink. Indeed, many households said that they did not pay much attention to their water bills because they were lower than other household bills.

For low income households, there appeared to be relatively little consideration of using water efficiently as a way of saving money – either in the behaviour that we observed or in the conversations that we had with participants.

Metering

Similarly, having a water meter did not appear to affect water usage at the kitchen sink. The households who had a water meter did not noticeably attempt to save water at the kitchen sink – and, when prompted, indicated that this was not a significant consideration.

There seems to be considerable potential for behaviour change in young, shared households

Household composition and life stage

There was little correlation between household size and kitchen sink water usage. However, household composition appears important – although it is difficult to draw firm conclusions from our small sample:

- **Shared households of young people** (such as student households) appear to represent key moments of change for water usage at the kitchen sink. We observed (and heard about) new habits forming as individuals adapted to new surroundings and learned from others.
- **For families with young children**, hassle and time factors appear particularly salient – with these practical considerations often trumping “good” behaviours.
- **Single person households** were often particularly routinised (a pattern which may have been accentuated by the national lockdowns at the time of fieldwork). They tended to report kitchen sink behaviour relatively accurately in our follow-up interviews, compared to other households.

Case study: a busy family

One of our households displayed all the hallmarks of a busy family household. Both parents had a good understanding of the problems that can be caused by pouring fats, oils and greases (FOGs) down the sink. However, we observed one of the household members pouring a large volume of FOGs down the sink after roasting a chicken – when we shared this clip with the respondents in the follow-up interview, the household member told us that she did not have time to dispose of FOGs properly.



[Watch this video for more detail](#)

Attitudes towards cleanliness have a significant impact on kitchen sink water usage

Attitudes towards waste

The generational dimension to behaviours appeared to be linked to a broader mindset regarding waste. The older participants in our sample often told us how they disapproved of waste (of any kind) and tried to conserve in many aspects of their life. This was not explicitly driven by or linked to environmental considerations – although these may of course play a part.

Cleanliness

Different approaches to cleanliness played a significant role in affecting water usage. Cleaning behaviours accounted for a high proportion of kitchen sink water usage in some households – although household set-up was also a factor in what we observed (for example, where households had other sinks which were the cleaning “hub”, such as in a utility room).

The number of washing up “events” per day was also closely linked to overall kitchen sink water usage (see case study) – indicating that persuading households to do washing up in batches might reduce overall water usage at the kitchen sink.

The cleanliness mindset also determined whether some households were happy to use a washing up bowl or plug – with the idea of washing crockery with “dirty” water from a bowl or basin often off-putting.

Case study: the cleanliness mindset

In one of our households, cleanliness and hygiene behaviours were extremely frequent, with a major impact on water usage. We observed up to 22 individual cleaning events in a single day (most frequently running the tap onto a cloth before wiping down surfaces or around the sink, as well as rigorously mopping the kitchen floor twice a week).

Our interviews indicated that hygiene was very important to household members – however, they also considered themselves environmentally friendly and had little awareness of the extent to which their cleaning behaviours affected their water use.

Some behaviours (e.g. running the tap onto a cloth before wiping surfaces) also appeared reflexive rather than considered actions to improve cleanliness. It may be worth exploring the potential impact of setting norms around the frequency of regular household cleaning behaviours.

Many households were not aware that saving water is an environmentally friendly activity

Environmental mindset and knowledge of the need to save water

Echoing the findings of other studies, we did not observe a strong link between environmental mindset and kitchen sink water usage. Some of the most water efficient households in our sample did not claim to be particularly environmentally friendly; and some of the least water efficient told us that they considered themselves very environmentally conscious.

When we asked participants to tell us what they did that was environmentally friendly, water-related behaviours hardly featured. Other behaviours, such as recycling single-use plastics, using reusable shopping bags and minimising energy use within the household, were far more common.

Even when prompted, many consumers were unaware of the link between minimising water usage and tackling climate change, or of the need to save water in the UK. This suggests that water use is not part of the climate change narrative.

Knowledge of how to save water:

Even when informed of the need to save water and the scale of the future challenge facing the UK, many consumers in our sample told us that they had only a limited understanding of how they could save water. Many struggled to answer questions around this at all.

The most commonly mentioned ways to save water included not running the tap while brushing teeth and not watering the garden during a drought.

In the context of the kitchen sink specifically, many of our participants told us that they had no idea of how they could save water.

"I don't consider myself particularly wasteful as far as water is concerned. The way I wash the dishes with the tap running. I don't really like the idea of washing dishes in dirty water, I think that's why I do that. Other than that, I don't consider myself wasteful with the water." Couple, no children

Many kitchen sink behaviours have been learned subconsciously

Subconscious behaviours

In the follow-up interviews, many participants found it difficult to talk about or explain their kitchen sink habits, such as why they did the washing up in a certain way.

Some discussed the role that childhood experiences must have played, although admitted that they had never really thought about this – realising that their washing up technique approach mirrored that of their mother or father, for example.

Others suggested that their behaviour was influenced by observing other people (e.g. when moving into a shared house or when living together with their partner for the first time); or shaped by practical factors (such as the space available in their first kitchen).

Life experiences

Life experiences were also important – such as growing up in countries more severely affected by drought than the UK, or specific environments where water use is constrained, which can translate into a strong water efficiency mindset (see case study).

Many kitchen sink water usage habits are shaped behind closed doors, with strong influences from family and friends but few social norms.

Case study: living in a motorhome

One of our participants was a 65 year-old woman who lived alone. She revealed in our depth interviews that she had lived in a motorhome for many years (although no longer does this). She said that this had encouraged her to form water efficient habits, out of necessity and convenience.

Specifically, she said that she had a 25-litre water tank while in the motorhome, which she disliked refilling because it was very heavy and took a lot of effort – as a result, she tried to conserve her water usage so that only had to refill this occasionally.

She told us that she believes that this explains her ongoing behaviours.

Personal experience also shapes FOG behaviours

First-hand experience of FOG issues

Households which disposed of FOGs appropriately were very likely to report having experienced first-hand the consequences of poor FOG disposal (such as a blocked sink or drain) – and wanted to avoid experiencing this again. Steps taken by some households including using a fat trap.

We also observed some misconceptions regarding water efficiency and FOG disposal – these included:

- That water is plentiful in the UK – as the UK is a “wet” country
- That pouring small volumes of FOGs down the sink will not cause a blockage
- That leaving FOGs soaking in the sink with washing-up liquid will cause the FOGs to break down and prevent blockages.



[Click to play video](#)

“I try not to, I do wipe it with kitchen towel. I wipe off as much as the grease as I can, and put it in the bin. My drains are inclined to block.” Single person household, over 65 yrs.

A photograph of a kitchen sink area. In the foreground, a blue brush with green bristles is leaning against the sink. The sink is filled with water and a red object is visible in the background. A teal banner with white text is overlaid on the image.

Accuracy of recalled behaviour

Consumers find it difficult to accurately report their own kitchen sink behaviour

In the follow-up interviews, we asked participants a series of questions* about their recalled kitchen sink behaviour for the observation period – these questions were designed to reflect how the water sector currently asks consumers to recall behaviour. **Participants told us that they struggled to answer the questions and very few recalled their own behaviour accurately.**



[Click to play
video](#)

Behaviour frequency, household composition and working patterns all affect the accuracy of recalled behaviour

Much water usage behaviour is subconscious – making it hard for consumers to remember and self-report their own usage. Various factors also affected how accurately the sample self-reported their kitchen sink behaviour:



Frequency of behaviour

- The frequency of specific behaviours is household-dependent.
- More frequent behaviours (such as doing the washing up, for some households) are harder to count and recall.



Household composition

- Respondents were not always privy to the behaviours of others in their household, so struggled to report behaviour on their behalf.

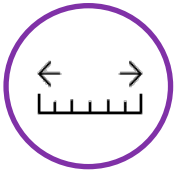


Working patterns

- Those working away from home had fewer kitchen sink moments in a day, so tended to find it easier to count these and recall them accurately.

Question interpretation and understanding of volume affect the accuracy of responses to questions about kitchen sink water usage

Kitchen sink water usage



Many participants found it difficult to quantify water usage.

- Many do not know what specific volumes (e.g. litres) mean in practice – meaning that water sector communications which rely on volumes in relation to water usage may have low cut-through.
- There was low awareness of how much water specific behaviours use – for example, having a shower or filling the bath.
- Many are unable to visualise the amount that they use in a day. When it was revealed that the average person uses c.142 litres of water a day, respondents were generally shocked and surprised (see video).



[Click to play video](#)



Different question interpretations also affect the accuracy of recall data about water usage.

- The parameters of individual behaviours can feel unclear, leading to differing interpretations – i.e. when a washing up moment starts or ends, or what counts as “using the kitchen sink”. Clearly, our own definition of these events (we tallied each motion-activated video clip rather than seeking to separate these out further into individual moments) is also subjective and sometimes did not align with participants’ (often implied) definitions.

Consumers also frequently misrepresent their own behaviour

Kitchen sink water usage

Most participants tended to put a positive spin on their behaviour (this is also true for FOG disposal)

- Many did not report some “bad” habits or behaviours e.g. washing up by constantly running the tap or walking away while the tap was running.

It was not until they were faced with detailed probing or a video recording of what they actually do that many realised or admitted to their “bad” behaviours.

- Some respondents appeared genuinely shocked by some of the behaviour captured on camera and admitted that that they had no idea what they were doing – highlighting how much kitchen sink behaviour is subconscious.
- Where respondents appeared to have been aware of their own behaviour, they often became defensive or tried to rationalise the behaviour.



[Click to play video](#)

The challenge of truly understanding habits that are known to be “bad” highlights the value of observational research, which does not rely on recalled behaviour.

Most participants told us that they generally behaved responsibly regarding FOG disposal

Disposing of FOGs

We asked participants how they dispose of FOGs – their responses fell into three categories:

1

Belief that their **cooking ingredients** do not include high volumes of FOGs

This mainly included using cooking ingredients which consumers do not believe are harmful to the kitchen sink drain. For example, some households report using low fat and lean meats, low fat cooking sprays and coconut oil – all of which they believe can go down the kitchen sink drain without causing blockages.

2

Belief that their use of **cleaning and kitchen products** helps dispose of FOGs

Some households reported using kitchen foil to cover trays / grills to catch FOGs generated from cooking and easily put them straight into the bin. Other households told us that they rinse small quantities down the sink with washing up liquid as they believe the combination of washing up liquid and hot water breaks down the FOGs. One household had a pot by their sink which they poured fat into before washing up.

3

Using specific strategies for disposing of **large quantities** of FOGs

Respondents told us about disposing of larger volumes of FOGs by (among other strategies): pouring oil into a mug and re-using on another cooking occasion; pouring into a glass jar and disposing of in the bin; leaving to harden and scraping into the kitchen bin; covering with sawdust to soak off the residue and scraping into the bin; wiping with a paper towel. Some of these may be worth using as positive examples in future behaviour change campaigns.

In reality, most households poured FOGs down the kitchen sink drain – sometimes in very large quantities

Disposing of FOGs

- 13 out of 15 households were observed disposing of small quantities of FOGs via the kitchen sink drain – primarily frying pans and baking trays placed straight into the kitchen sink and rinsed down with hot water and washing up liquid.
- Two households were observed pouring very large quantities of FOGs down the drain – in both cases, after a Sunday roast dinner. Neither household had told us that they typically disposed of FOGs like this, prior to us showing them the video footage in the follow-up depth interview.
 - In one household, the lead respondent admitted to putting small quantities of FOGs down the plughole but said they had forgotten about the occasion recorded on camera in which chicken fat was poured straight from a baking tray down the kitchen sink drain.
 - In the second household, the respondent claimed that they always leave fat to harden before scraping it into the bin – however, they were observed on camera pouring chicken juice down the kitchen sink drain.



[Click to play video](#)



The impact of COVID-19 at the kitchen sink

There are signs that consumers are reverting to pre-pandemic behaviour, and that water-use changes may be temporary

- In the context of this study, it is difficult for us to draw firm conclusions about changes to kitchen sink behaviour since the start of the pandemic – because we are relying on reported consumer behaviour and do not have a comparable pre-COVID baseline.
- **However, although households are unsure what future life will look like, many COVID-related changes look temporary.**
 - Many households told us of their strong desire to spend less time in the kitchen – socialising more and having daily routines which mean that cooking does not take on such importance.
 - Some participants said that, even though they had taken hygiene more seriously (and used more water as a result) in the early days of the pandemic, their hygiene-related behaviours were already returning to pre-pandemic levels.



Temporary change in water-use behaviour is due to more time at home, enhanced hygiene and increased cooking



More time at home

Increased time at home has increased the use of water at home for various activities, including washing up, toilet flushing, cleaning and taking showers.

This has displaced out-of-home water usage for the time being, but many households expect this to return closer to pre-pandemic levels as they return to places such as offices, gyms and schools.

However, those currently working from home (who would not typically do so) expect that some of these relatively new habits are likely to continue if they are able to work from home more regularly in the future.



Enhanced hygiene

Many participants told us that the COVID-19 pandemic had prompted them to wash their hands more frequently (with some saying that they wash them without fail every time they return to the house), wash their hands for longer periods of time and be more hygienic in other ways.

But some suggest that their hygiene habits are already closer to pre-pandemic behaviour after peaking in the Spring 2020 lockdown – as fear of the virus has receded and day-to-day lives in the pandemic have become more routinised.



Increased cooking

Our participants told us that the pandemic had prompted them to spend more time cooking at home.

While some have enjoyed “pastime cooking” (e.g. baking bread) and experimenting with new recipes and hope to continue, most anticipate doing this less when the pandemic is over. Many said they were making more hot drinks at home than before the pandemic.

Many expect to revert to past behaviours when the pandemic is over. This is particularly true in the short-term (as a “reward” for making it through the pandemic), although may also continue in the long-term too.



Water sector communications

There was very little recall of behaviour change communications on water usage or FOGs

Very few of our households could recall ever hearing any tips for water saving.

- The most commonly referenced tip was not running the tap while brushing teeth. Some also recalled messages around not using hosepipes in hot weather.

None could recall any tips about ways to save water in the kitchen – and certainly not at the kitchen sink – indicating that sector communications are not cutting through with many consumers.

- As highlighted previously, even those adopting “good” water use behaviours at the kitchen sink had rarely adopted these to save water.

Awareness that it was not good to pour FOGs down the sink is driven by personal experience, not sector comms.

- But this was usually driven by direct experience of the consequences (e.g. a blocked drain) rather than any industry communications. Many assumed that small quantities or certain types of fats were ok. The apparent ease of disposing of pouring FOGs down the sink often outweighs vague awareness of the negative consequences, except where this awareness is heightened due to personal experience of living with a blockage.

“I feel like I’ve seen some advertisements about having fewer washes [...] saving the environment, prolonging the life of your clothes, but I think that’s the only thing I’ve seen or thought of recently.”

Couple, no children

“My housemate poured a wax melt down the kitchen sink drain. It blocked and we had to get a plumber out...he was not impressed.”

Shared household

Above all, consumers do not know why they should save water

There is very limited understanding that water is scarce in many parts the UK.

- When informed that there may not be enough water for our needs in the future, many respondents were surprised – particularly as they often think that the UK has a wet climate.
- Some also questioned this – particularly when they lived in what they felt were wet regions, such as Wales or the South West of England.
- There were some exceptions to this, where individuals had grown up in water-scarce countries or where they had been cut off from water for an extended time.



[Click to play video](#)

There is also little knowledge of the other environmental effects of water use.

- Very few households are aware of the process through which water is made suitable for our use.
- Even if they are, they rarely link this to environmental impacts such as the energy required for key processes and use of chemicals.

Water-related issues appear largely absent from top-of-mind thinking about the environment – as a result, few associate saving water with being environmentally friendly.

Low understanding of the wider context means that water efficiency communications fall flat

We tested some example behaviour change communications from across the water sector.

It was clear from responses to the communications examples that many consumers do not understand why they should change behaviours. Indeed, because this need to save water was not deeply ingrained (and even counter-intuitive for some), there was:

- No real sense of urgency on the part of many households regarding the need to save water, despite the messaging in some of the materials we tested.
- Only a very limited sense that individuals would be “doing their bit” to help the environment by saving water, in stark contrast to other behaviours such as recycling.
- Very limited satisfaction (in relation to water efficient behaviours) or guilt (for inefficient behaviours), because many do not know what counts as “good” and “bad” water use – and struggle to say what their own behaviour classes as.



[Click to play video](#)

The materials’ campaign messages therefore often fell flat. Based on our small sample, it seems that more needs to be done to understand the behavioural impact of explaining how water efficiency can be an environmentally friendly behaviour – as many consumers are not yet aware of this.

Responses to communications highlight the importance of a strategic, long-term approach to behaviour change on water usage and FOG disposal



Kitchen sink water usage (and potentially household water usage more generally) is private, with few social norms or touchpoints offering an opportunity to change behaviours.

Consumers' relationships with water companies and their own usage also tend to be relatively distant:

- Our participants were largely unaware of water companies' efforts to educate them about water usage and change behaviours (e.g. through communications campaigns or provision of water-saving devices).
- Unlike in the energy sector, water consumers are largely not benefitting from meters that communicate with the households about usage.
- Many householders do not realise that they need to proactively prevent blockages through their own actions, because these are usually rare events and because what happens beyond the plug hole is often a mystery.

Communications must therefore:

- **Explain the context for why behaviour change is necessary**
- **Enable consumers to understand how they can do their bit**
- **Provide consumers with the knowledge / tools to change their behaviours**
- **Deliver core messages through trusted channels and messengers, over the long term.**



The voice for water consumers
Llais defnyddwyr dŵr

Report Authors

Tom Clarkson, Director at Blue Marble Research: Tom@bluemarbleresearch.co.uk

Victoria Ulph, Associate Director at Blue Marble Research: Victoria@bluemarbleresearch.co.uk

ccwater.org.uk



Appendix one: methodological detail

Background to the research

CCW commissioned this piece of research to stimulate industry interest in developing a more accurate understanding of water-related behaviour within the home; specifically, at the kitchen sink.

- At present, the water sector broadly relies on self-reported and survey style data for understanding water behaviour. However, the hypothesis was that self-reported data is inaccurate and what people say they do can be very different to what they actually do. This is especially relevant for the water sector where water usage has been widely considered as subconscious behaviour, making it even harder for people to accurately record and self-report on.
- CCW was therefore keen to commission an ethnographic study to show how close observation can shed light on actual behaviours – highlighting where existing self-reported data may be inaccurate.
- Research was commissioned in December 2020 and carried out in the early part of 2021 by Blue Marble Research Ltd, an independent market research agency.



Research approach



DESK REVIEW

Review current water sector behavioural research

Objective: gain baseline for recalled behaviour



PILOT

5 day pilot with one household – full process

Objective: test and refine research & improve process



SCOPE & SET UP

Check camera set-up and video scoping interviews with 14 households

Objective: build rapport, gain context, set-up camera



CAPTURE

7 days recording actual kitchen sink behaviour

Objective: observe actual behaviour, not recalled



ANALYSE

Review observed behaviour

Objective: design household specific probes pre interview



IN-HOME INTERVIEW

Follow up video interview with 14 households

Objective: explore/evaluate actual vs. recalled behaviour



DELIVER

Topline, full report, film

Objective: bring findings to life and publish

15 households took part in this study

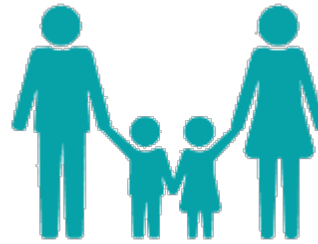
The sample was designed to be broadly reflective of household composition across England and Wales and designed to include a range of household types and profiles. We recruited the sample to a broad set of criteria – outlined in full on the next slide.



**Single person
households x4**
2x > 65 yrs
2 x < 65 yrs



**Couples with no
children x3**



Families x4
2x younger
2 x older



**Single parent
household x1**



**Student / shared
household x3**

The sample included 10 households from England and 5 households from Wales:

- **Specific locations in England:** Bath, Bristol, Plymouth, London, Walsall, Norwich, Stockport, York, Carlisle, Middlesbrough
- **Specific locations in Wales:** Prestatyn, Caernarfon, Brecon, Pembroke, Cardiff

Participating households in detail

A detailed breakdown of the sample and the criteria are shown in the following table:

	Household Composition	Criteria across the sample reflecting factors that may affect behaviour
1	One-person household – under 65	<ul style="list-style-type: none">• Age: 20 – 81 years old• Socio-economic grade: 7 x ABC1; 8 x C2DE• 6 x on a water meter (2 of which were low income households), 9 x not on a water meter• 9 x were home-owners, 6 x were renters• 2 x ethnic minorities and/or conform to non-UK religious/cultural lifestyle households• 6 x households had a dishwasher, 9 x households did not have a dishwasher• 3 x households had someone with a long-term health/disability• 2 x households included someone with “dark green” environmental attitudes e.g. member of environmental organisation/voted Green• Pandemic working status:<ul style="list-style-type: none">• 5 x with someone in the households not working due to furlough• 5 x with someone in the household working from home• 5 x with someone in the household not working from home• 6 x households had a cafetiere/coffee device which generates coffee granules• Across the sample, we recruited households with a mix of cooking behaviours in terms of using fats, oils and greases
2		
3	One-person household – over 65	
4		
5	Couple with no children	
6		
7		
8	Couple with dependent children (two younger and two older family)	
9		
10		
11		
12	Lone parent household	
13	Student / shared house	
14		
15		

Sample rationale (1)

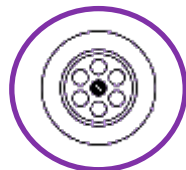
In addition to household composition, income and life stage, specific criteria were set for the sample to ensure a wide repertoire of household behaviours were captured in the research – specifically, criteria which may influence behaviour at the kitchen sink.



Usage-related criteria: around half of the participating households were recruited to be on a water meter, which is broadly representative of national metering uptake. Likewise, around half of households were recruited to not have a dishwasher, which is also reflective of current market penetration. The hypothesis was that being metered or having a dishwasher may influence how people behave at the kitchen sink. The sample also included households with and without a washing up bowl.



Households having more than one kitchen sink were also considered: the sample capped the number of households with a utility room sink. The sample included 2 households with a utility room and separate sink. This was to ensure the majority of kitchen sink behaviour was observed and not missed by being out of range of the cameras.



FOG-specific criteria: criteria were set to increase the chances of the research capturing what people put down the kitchen sink drain. This included recruiting households who regularly cook with fats, oils and greases and regularly make coffee via a method which generates coffee grains - for example, via a cafetiere or bean-to-cup coffee machine.

Sample rationale (2)

In addition to household composition, income and life stage, specific criteria were set for the sample to ensure a wide repertoire of household behaviours were captured in the research – specifically, criteria which may influence behaviour at the kitchen sink.



Environmental attitude: based on research that has been conducted in the water sector and beyond, there may be a link between environmental attitude and behaviour – broadly speaking.



The Covid-19 context: given that the research was conducted amidst the Covid-19 pandemic, we wanted to reflect the new norm of working and home schooling/studying patterns within the sample. As such, the sample included a representative mix of households working from home, not working due to being on furlough or redundancy and working out of home as before the pandemic.

Approach to consent

Gaining the necessary and right consent was a crucial element of this study.

Prior to taking part in the research

- All participants were informed of the filming nature of the study and intentions of publishing the research, including respondent video and interview footage.
- All participating households were asked to complete an extensive online consent form which relayed how their household video footage will be used.
- Almost all participants agreed for their kitchen sink video footage and interview footage to enter the public domain – e.g. on CCW's website, all social media channels, presented at conferences, etc.
- All members of the household had to be informed of the research and provide consent
- For households with children, parents provided consent for under 16s to be filmed and for their footage to be made public.
- At the beginning of every interview, moderators verbally reminded all participants of the aims of the research and gained verbal consent to be filmed, and reminded all participants that video footage would enter the public domain.



Content design: set up

Participating households were unaware of the true nature of the research until after their behaviour had been observed and analysed.

- They were aware that the researchers were interested in behaviour at the kitchen sink – implicit by the video camera position - but beyond this they were not primed. The rationale for this was to ensure that behaviour was as natural as possible.
- Participants said they became relatively unaware of the camera, especially after a couple of days had passed. Many described it as typical week.
- Participants were assigned to a moderator who became their main point of contact throughout the study. This was to ensure continuity, allow for rapport building and to make participants feel as reassured and comfortable as possible.

"I did forget about it [the camera]"
Single person household, over 65 yrs.

"I barely noticed the camera was there to be honest. I was not at all conscious it was there...I completely forget after the first or second day of it being there."
Student/shared household

"Maybe the first couple of days I was making a conscious effort to keep the draining board a little clearer" Student/shared household

Content design: desk review and pilot



DESK REVIEW

Review current water sector behavioural research

Objective: gain baseline for recalled behaviour



PILOT

5 day pilot with one household – full process

Objective: test and refine research & improve process

Desk review

- We conducted a short, rapid desk review to understand the water sector's existing knowledge on this topic.
- From the desk review we generated a set of industry standard survey-style questions to include in the qualitative interviews – it was via these questions that we asked our participants to self-report their behaviour.
- The desk review was not exhaustive, but looked at 17 sources. From this, we have drawn a set of conclusions which are outlined in section in the main section of this report

Pilot

- One household acted as a pilot. They took part in the study a few weeks prior to the rest of the sample. We piloted the entire research approach, content design and technology. This allowed us to refine the research materials and approach ahead of mainstage fieldwork.

Content design: interview 1



SCOPE & SET UP

Check camera set-up and video scoping interviews with 14 households

Objective: build rapport, gain context, set-up camera

- Prior to the first interview, respondents were sent the video camera and a briefing pack with details on how to set up the device. Almost all were able to set up the device without moderator support.
- The fieldwork started with an initial set-up interview which was conducted as a video call and lasted 45 minutes – most were conducted via Zoom, and one was conducted via the telephone as the participant was less digitally confident.
- The purpose of the call was to gather context about the participating households, make them feel at ease with the process of the study and to set up and install the camera.
- As part of this discussion, moderators used mainly open-ended questions and carefully probed, ensuring that the full aims of the research did not become apparent.

The discussion followed this structure*

Introduction	<ul style="list-style-type: none">• Intro to the research• A reminder of filming and consent
Household introduction	<ul style="list-style-type: none">• Met everyone in the household, established relationship to one another• Working/studying status
Household lifestyle and kitchen behaviour	<ul style="list-style-type: none">• Discussed day-to-day routine, hobbies, interests, lifestyle• Kitchen behaviour and routine• The impact COVID-19 has had
Camera set up and installation	<ul style="list-style-type: none">• Checked camera set-up, ensured it was in optimum location• Reassured participants

Content design: observation



CAPTURE

7 days recording
actual kitchen sink
behaviour

Objective:
observe actual
behaviour, not
recalled



ANALYSE

Review observed
behaviour

Objective: design
household specific
probes pre interview

- Moderators accessed respondents' cameras every day to check the equipment was working and that the camera was still in the optimal position. The camera could be remotely accessed and checked at any time without the need to contact respondents.
- The camera was motion-sensitive and started recording whenever movement was detected. Footage was instantly uploaded to a cloud storage portal where moderators could observe behaviour as it was happening. The camera microphone was disabled to provide an element of privacy for participants.
- Moderators familiarised themselves with how the household behaved at the kitchen sink, both in terms of water usage and what they put down the drain, before selecting a handful of video clips/behaviours to show and probe during the second interview.

Content design: interview 2



**IN-HOME
INTERVIEW**

Follow up video
interview with 14
households

Objective: explore/
evaluate actual vs.
recalled behaviour

- The fieldwork ended with a 1-hour video interview. Where possible this was conducted with the entire household.
- The discussion started by capturing self-reported behaviour by asking a set of industry standard survey style questions – all households were asked the same set of questions in the same way. We aimed to replicate the traditional approaches to researching water usage.
- This self-reported behaviour was then compared to actual/observed behaviour captured on video camera to explore the difference, if any, between what people say they do and what they actually do. It was at this stage in the study that the true nature of the research was revealed to participants.
- For the final section of the discussion, respondents were shown a selection of water sector communications / adverts to assess their effectiveness and likeliness to change behaviour.

The discussion followed this structure*

Welcome back	<ul style="list-style-type: none">• Reminder of filming and consent• Experience of being observed
Recalled behaviour	<ul style="list-style-type: none">• Used a set of industry standard questions to capture recalled kitchen sink behaviour• Explored environmental attitude
Revealed true nature of the research	<ul style="list-style-type: none">• Discussed kitchen sink behaviour in detail, capturing how participants think they behave
Actual behaviour	<ul style="list-style-type: none">• Showed examples of the household’s actual behaviour captured on video• Explored recall vs actual
Water sector comms	<ul style="list-style-type: none">• Showed and discussed examples of water sector comms

Approach to data analysis

- In total, this study captured 105 days' worth of kitchen sink behaviour.
- The first 48 hours of recorded behaviour were discarded. This was to allow respondents to become more comfortable with the presence of the camera and for our analysis to focus on the period where we thought behaviour would be most natural.
- 75 days of recorded kitchen behaviour were reviewed and coded in detail.
 - Coding included: tally of how many times respondents used the tap; how long they ran the tap for throughout any given day; counting number of times they did certain activities.



Selecting the right technology

Choosing the right video camera was a fundamental part of this study. It needed to be both compatible from a researcher's perspective but also be user-friendly and unobtrusive from a respondent's perspective. The selected technology had the following features:

- Designed to be set up and used by householders, with simple to use, consumer-facing instructions.
- Once installed, the camera worked uninterrupted for the entire fieldwork period.
- High-quality, HD camera positioned flexibly in each kitchen, tailored to the specific set-up so that it captured household kitchen sink behaviour in full.
- Motion-triggered, meaning it only recorded when movement was detected, avoiding recording non-activity. Recorded with sound off, giving privacy to householders.
- Remote check-in and observation – researchers were able to review the footage in real time, ensuring that there were no technical problems as fieldwork progressed.
- Remote camera movement – researchers could pan and tilt the camera to ensure optimum frame.
- Cloud storage of videos – so researchers could view and download footage prior to final interviews with respondents. There was also no risk of storage becoming full during the fieldwork period (as would be that case with an approach using a memory card).
- Unobtrusive – the camera did not make any noise, and is relatively small, so disruption to participants' daily routine was minimal.



A photograph of a kitchen sink area. In the foreground, a stainless steel sink is visible with a drain. To the right of the sink, a white plate with a floral pattern and a yellow container are placed on the counter. In the background, a person is standing at a table covered with a blue cloth, and a black dog is visible near the kitchen cabinets. A teal banner with white text is overlaid across the middle of the image.

Appendix two: findings from the desk review

Self-reported environmental consciousness does not necessarily correlate with water efficiency

- UKWIR's 2015 study on integrating behaviour change into demand modelling established that there is no clear correlation between water usage and environmental friendliness. Some of the more environmentally conscious groups in their quantitative research were among the highest water users. Indeed, the report authors estimate that c. 50% of variation in water usage can be explained by demographic factors which are already included in demand modelling – such as occupancy, garden size, dishwasher ownership, presence of children in the household. Behavioural variables do not appear to be closely correlated to water use.
- The report authors also identify a trend in shower usage by time of peak activity – i.e. early risers tend to use more water in the shower whereas mid-morning showerers tend to use less. The time of peak activity is closely correlated with a host of demographic factors including working status and presence of school-age children in the household.

- However, the authors of the report also conclude that there appears to be a lack of concern about water scarcity in the UK – with water being considered by research respondents as precious, but abundant. However, knowledge and attitudes surrounding environmental issues may have moved on significantly since the publication of some of these studies.
- In a 2020 public poll conducted by Water UK, 68% of respondents said they are willing to reduce the amount of water they use at home to help protect the environment. 42% of UK adults reported being worried about parts of the UK running out of water in the next 25-years. Separately, Water Wise and the EA found that 69% of respondents said they take action to reduce their water consumption.
- CCW's (soon to be published) research on customer awareness on the availability of water resources suggests that 50% of customers think there is plenty of water in their area. But, 41% of customers in water stressed areas think that water is plentiful where they live.

There are a number of factors which affect household water consumption

- Households who have chosen to have a water meter are more likely to use less water.
- According to Defra, those who actively request a meter are more likely to go to a “great deal” or “fair amount” of effort to reduce their water use (77%, compared to 62% of those who had a meter installed compulsorily).
- Smaller households use disproportionately more water than large households because of shared water use.
- An academic study from 2012 suggested that single-person households consume twice as much water per person as one person in a five-person household.
- A report by the Energy Saving Trust found that children are also higher users of water – for example, children are much more likely to take longer showers than older adults.
- The largest proportion of household water consumption is reported to be within the bathroom, due to showering, taking baths and toilet flushing. The Energy Saving Trust (EST) undertook research based on data collected from the online Water Energy Calculator, a self-completion tool which questioned respondents about various aspects of household water consumption habits. Over 2 years, more than 100,000 households participated, providing one of the largest data sets on domestic water consumption in the UK. The study found that showers used the bulk of water within the home, accounting for 25% of use, with an estimate of 22% for toilets.

There is evidence that water is not being used efficiently within the home

- The Energy Saving Trust indicated that 85% of households boil the kettle every day, with three quarters boiling more water than they really need, often wasting water and costing British households £68 million on energy bills a year.
- In 2020, Finish (a dishwasher detergent brand) and Love Water found that 51% of people believe that British households use the same or less water compared to other European households, when in fact we use more than most.
- Water UK say that households use 142 litres of water per person per day, although most UK adults have no idea of this.

Households are very good at remembering “quick tip” advice on ways to save water

- This emerged from the Energy Saving Trust paper – and households are often quite proud to remember these. However, there are no quick tips in relation to kitchen sink behaviour. 63% of UK adults say they always turn the tap off when they brush their teeth (Water UK public poll, 2020).

Household water usage has changed dramatically since the beginning of the Covid-19 pandemic

Work by Artesia and the University of Manchester has highlighted the shifts that have occurred since the beginning of the pandemic. Key changes include:

- A relocation of water usage from public locations (office, gym, etc) to home – and peak times have changed.
- A huge increase in water usage linked to domestic gardens, although this was also linked to the very hot weather during the March – May lockdown in 2019.
- The adoption of some very water-intensive practices since the start of the pandemic, for reasons of hygiene – although these may have changed and receded as the pandemic has progressed.

ONS data from November 2020 suggested that around 90% of the public have increased hand-washing activities since the start of the pandemic.

Research conducted in 2020 by Finish and Love Water revealed that 48% are handwashing dishes in the sink more, as a result of COVID-19.

Data specifically relating to the kitchen sink is limited

Data specifically about kitchen sink behaviours is limited

- According to Finish and Love Water, 42% of research participants let the tap run until water is cold for drinking; and 17% pre-rinse dishes before filling the dishwasher.
- Pouring FOGs down the sink is relatively common. Around half of UK households owned up to ever pouring FOGs down the sink, according to a 2019 survey commissioned by Lanes for Drains.
- The Energy Saving Trust (2013) reports that 86% of people use a bowl when washing dishes by hand.
- Beyond this, detailed information on other kitchen sink behaviour is relatively scarce – e.g. relating to disposing of coffee granules, use for cleaning purposes, cooking etc. All specific data has thus far been reliant on respondents' recalled behaviour.

Kitchen sink use accounts for a relatively small proportion of household water usage

- Showering, toilet flushing and clothes washing are the most water-intensive household tasks. A study of German households by the BDEW indicated that dishwashing accounts for 6% of household water use.
- A multi-country study from 2012 indicated that dishwashing is the most water-intensive activity at the kitchen sink – dishwashing accounts for 58% of kitchen sink water usage, followed by cleaning (14%), cooking (12%) and drinking (8%).

There are mixed findings on the accuracy of reported usage relative to actual water usage

- In 2015, UKWIR found that perceived water usage does not closely match actual water consumption. But the Energy Saving Trust found in 2018 that some reported usage is very accurate – specifically, reported usage of household dishwashers and washing machines was very close to actual usage. The same study suggested that consumers tend to over-report use of baths and showers – perhaps due to a social desirability bias.
- In 2013/14, UKWIR commissioned Blue Marble to conduct research about understanding consumer behaviour for water demand forecasting. The research found that lower users of water actually report being higher users – another example of over-reported usage behaviour.
- According to a public poll conducted by Water UK in 2020, people hugely underestimate their household's daily consumption of water. 46% of people believe their household uses under 20 litres a day (roughly equivalent to taking a 2-minute shower) when the true figure is closer to 142 litres per person per day. The misconception is most acute amongst the young with 66% of 18-34-year-olds believing their household uses under 20 litres. However, the lack of awareness continues throughout the age groups with a quarter (26%) of over-65s answering the same.
- DEFRA found that only 6% of households report washing all of their dishes by hand. However, around half of households are believed to not have a dishwasher. This could be the result of the sample not being representative of dishwasher ownership – or, it could suggest the inaccuracy of recalled behaviour.

Literature review sources (1)

Organisation / Author	Title	
Artesia / University of Manchester	Impact of coronavirus on household water usage (2020)	https://www.artesia-consulting.co.uk/blog/Findings%20from%20the%20Artesia%20and%20University%20of%20Manchester%20research%20project%20are%20published
Artesia	Impact of Covid lockdown on water usage (2020)	https://www.artesia-consulting.co.uk/blog/New%20Waterwise%20article!%20The%20effect%20of%20the%20coronavirus%20lockdown%20on%20water%20use
BDEW	Trinkwasserverwendung im Haushalt (2019)	https://www.bdew.de/media/documents/Trinkwasserverwendung im HH 2019 o j Ott online_02112020_rS3R8ly.pdf
DEFRA	Consultation on measures to reduce personal water use (2019)	https://consult.defra.gov.uk/water/measures-to-reduce-personal-water-use/supporting_documents/Consultation%20on%20reducing%20personal%20water%20use%20FINAL.pdf https://deframedia.blog.gov.uk/2020/04/30/defras-response-to-coverage-of-eac-letter-on-water-demand/
DEFRA (Icaro Consulting)	Understanding household water behaviours and testing water efficiency measures (2013)	https://waterwise.org.uk/wp-content/uploads/2019/09/Icaro-Consulting-Report-2013_Understanding-Household-Water-Behaviours-and-Testing-Water-Efficiency-Messages.pdf
Energy Saving Trust	At Home With Water 2 (2018)	https://energysavingtrust.org.uk/sites/default/files/reports/AHHW2%20final.pdf
FINISH and Love Water	The Great British Rain Paradox (2020)	https://www.savewatercleanclever.co.uk/

Literature review sources (2)

Organisation / Author	Title	
FSA	Kitchen Life (2013)	https://www.food.gov.uk/sites/default/files/media/document/818-1-1496_KITCHEN_LIFE_FINAL_REPORT_10-07-13.pdf
Lanes Group plc	Understanding fatbergs, concretebergs and hidden plastics (2019)	https://www.lanesfordrains.co.uk/global/news/lanes-survey-reveals-uks-habits-attitudes-drainage-use-complete-data/
Ofwat (Artesia)	The long term potential for deep reductions in household water demand (2018)	https://www.ofwat.gov.uk/wp-content/uploads/2018/05/The-long-term-potential-for-deep-reductions-in-household-water-demand-report-by-Artesia-Consulting.pdf
UKWIR	Improving Understanding of Current and Future Household Water Use (2020)	https://ukwir.org/view/\$PySU0he! https://ukwir.org/improving-understanding-of-current-and-future-household-water-use
UKWIR	Integration of behaviour change into demand modelling (2015)	Not publicly available.
University of Bath (Elaine Gallagher & Dr Ian Walker)	Understanding water use in private settings: The case of showers.	https://www.bath.ac.uk/projects/understanding-water-use-in-private-settings-the-case-of-showers/

Literature review sources (3)

Organisation / Author	Title	
Water UK (Savanta ComRes)	"A poll of UK adults on their water usage and attitudes to saving water" (2020)	https://www.water.org.uk/news-item/vast-majority-of-brits-have-no-idea-how-much-water-they-use-each-day/ https://comresglobal.com/polls/water-uk-public-polling-august-2020/
Christian Paul Richter & Rainer Stamminger, Water Resources Management, 26, pp.1639-1649	Water Consumption in the Kitchen - A Case Study in Four European Countries. (2012)	https://link.springer.com/article/10.1007%2Fs11269-012-9976-5
Waterwise & NEA Action for Warm Homes	Covid water use and the impact on poverty in the UK (2020)	https://www.nea.org.uk/wp-content/uploads/2020/11/Waterwise-and-NEA-Joint-Paper-November-2020.pdf
Waterwise & Environment Agency	Generation Z and Water Efficiency (2019)	https://waterwise.org.uk/wp-content/uploads/2020/03/Generation-Z-Report-FINAL.pdf



Appendix three: catalogue of kitchen sink behaviours that we observed



We witnessed a wide range of kitchen sink behaviours, with varied water usage implications



<div>Washing up</div> 	Little and often throughout the day		Leave tap running to get hot before using		Pre-soak items
	Let it build up, in one go	Fill a bowl	Fill the sink	Occasionally rinse suds off	Run the tap constantly while washing up
<div>Filling the kettle</div> 	Empty before refilling		Filling to the top		Partially filling/filling exactly what is needed
	Refill without emptying first				
<div>Disposing of FOGs</div> 	Wipe residue away before washing		Allow to solidify before wiping		Putting pans/trays straight into the sink
	Using tin foil to easily dispose of small quantities		Pouring down the sink		



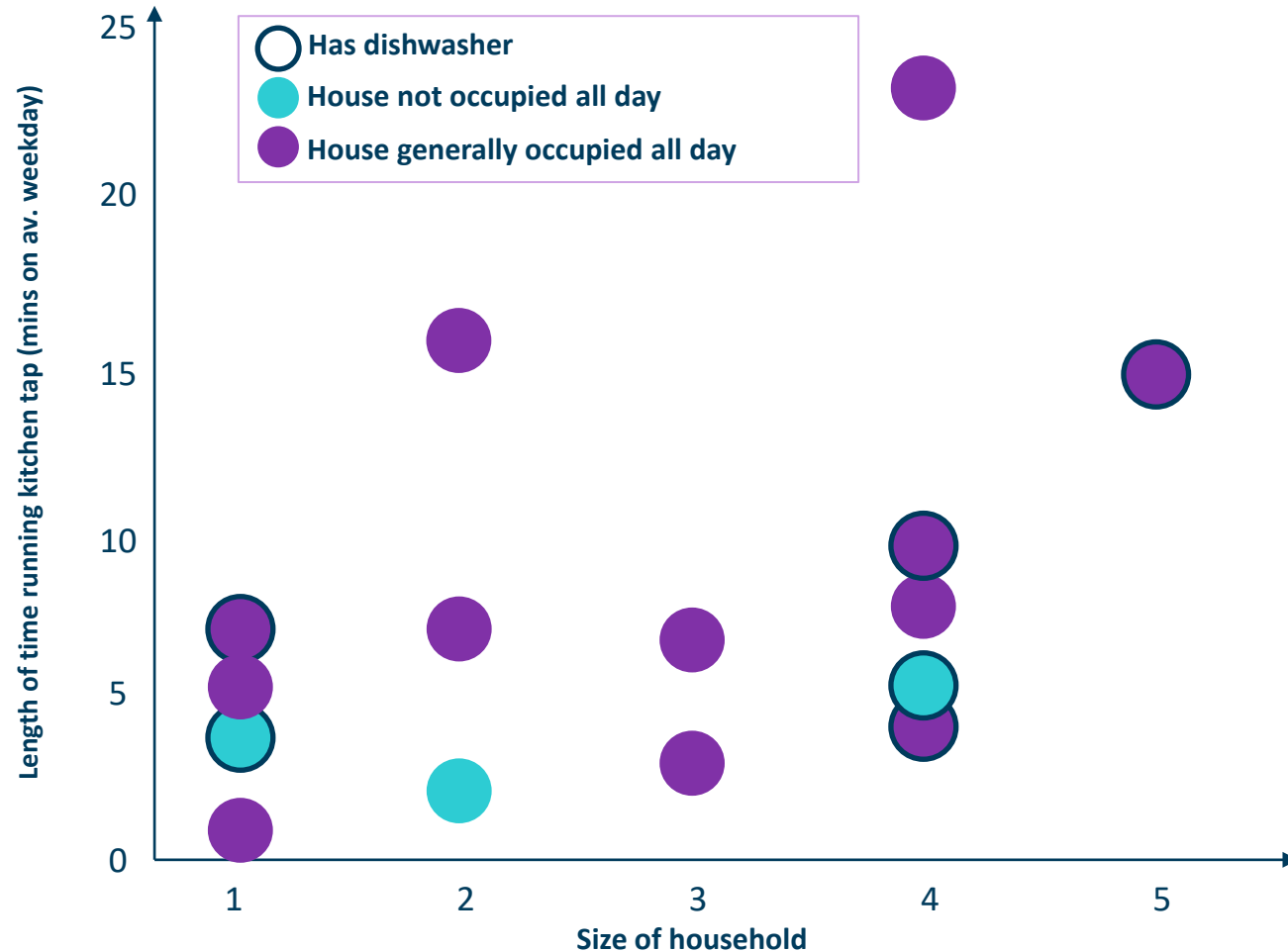
Average weekday kitchen tap running time varied between 10 seconds and 23 minutes

On average, our 15 households ran the tap for an average of approx. 8 minutes on a weekday and approx. 9 mins 40 seconds on a weekend day. However, these averages hide significant variation – the table below provides a full breakdown of variation across the households.

Number of people living there	Is the house occupied all day?	Does house have a dishwasher?	Av. Length of time running kitchen sink tap each day*	
			Weekday*	Weekend*
1	Y	Y	7 mins 30 seconds	N/A (away for weekend)
1	Y	N	6 mins 50 seconds	6 mins 30 seconds
1	N	Y	5 mins 20 seconds	15 mins 0 seconds
1	Y	N	10 seconds	50 seconds
2	Y	N	7 mins 30 seconds	8 mins 50 seconds
2	N	N	2 mins 30 seconds	6 mins 30 seconds
2	Y	N	16 mins 0 seconds	22 mins 10 seconds
3 (incl. 2 children)	Y	N	7 mins 0 seconds	10 mins 0 seconds
3	Y	N	3 mins 0 seconds	2 mins 10 seconds
4	Y	N	8 mins 20 seconds	6 mins 20 seconds
2-4	Y	N	23 mins 10 seconds	12 mins 30 seconds
4 (incl. 2 children)	Y	Y	4 mins 30 seconds	9 mins 0 seconds
4 (incl. 2 children)	Y	Y	9 mins 50 seconds	13 mins 0 seconds
4(incl. 2 children)	N	Y	5 mins 50 seconds	14 mins 40 seconds
5 (incl. 1 child)	Y	Y	14 mins 40 seconds	18 mins 40 seconds

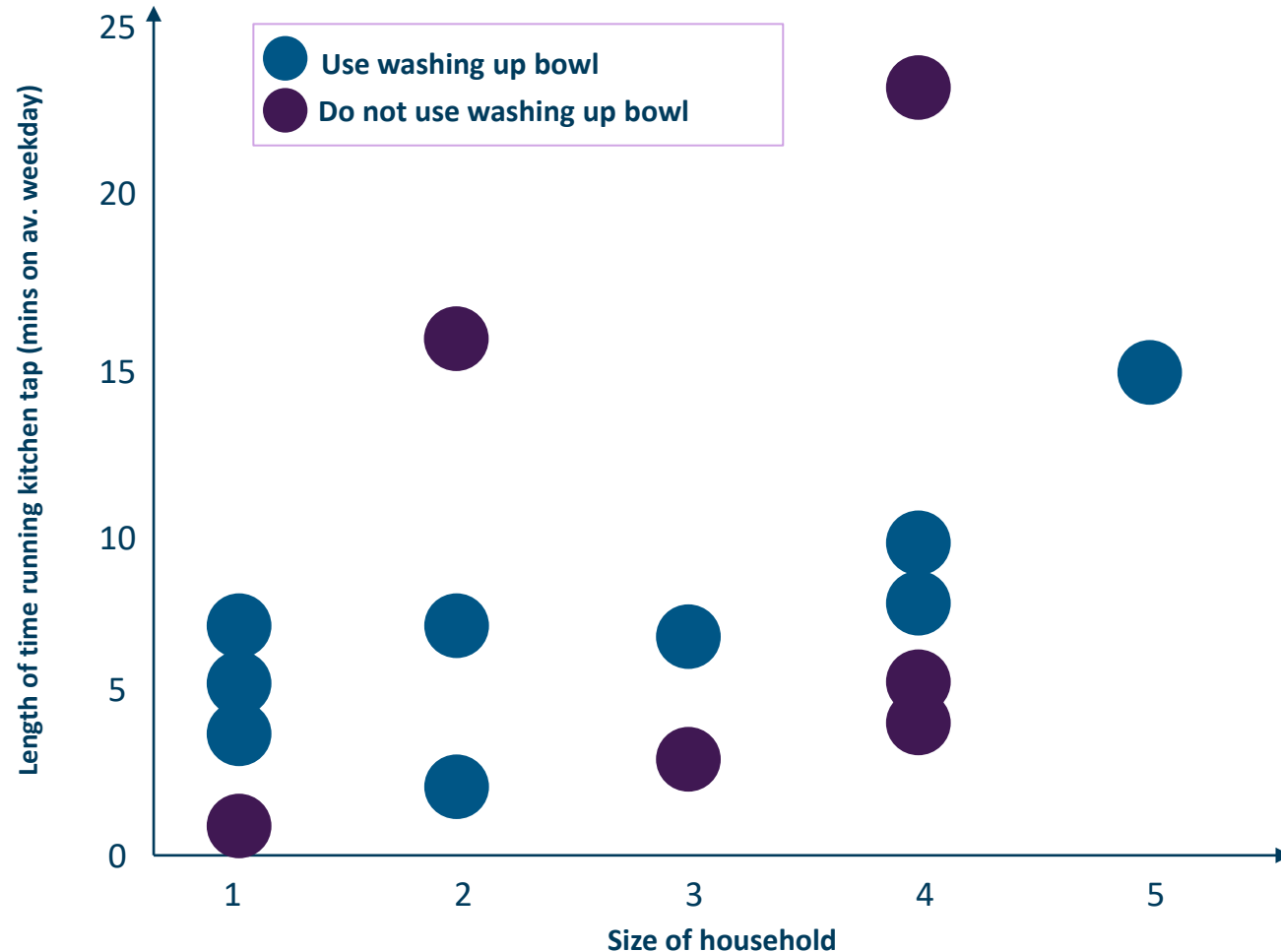
**All figures have been rounded to the nearest 10 seconds, to reflect indicative nature of average figures given the small sample size. Although kitchen tap running time is not a perfect measure of water use (due to differences in water pressure), it does offer a useful indication of relative water use.*

Kitchen tap water usage is more closely linked to length of time at home and dishwasher use than household size



- In our sample, the link between household size and kitchen tap running time was relatively weak – although some of the larger households were among the highest users of water, there were also notable exceptions to this trend.
- **Unsurprisingly, time spent in the home is linked to water use** – the three households in our sample where the house was not occupied for significant periods were all among the lower water users.*
 - There are a number of ways in which we could measure time spent in the home – to take one simple measure, working status can be used as a proxy, with households which included retired, unemployed, furloughed or WFH individuals unlikely to have significant time where the house is unoccupied. In our sample, households with these characteristics tended to have higher water use.
- **Having access to a dishwasher also does not appear to be a strong predictor of kitchen tap running time** – households with dishwashers were among the highest water users in our sample.

Use of a washing up bowl does not explain differences in water usage at the kitchen sink

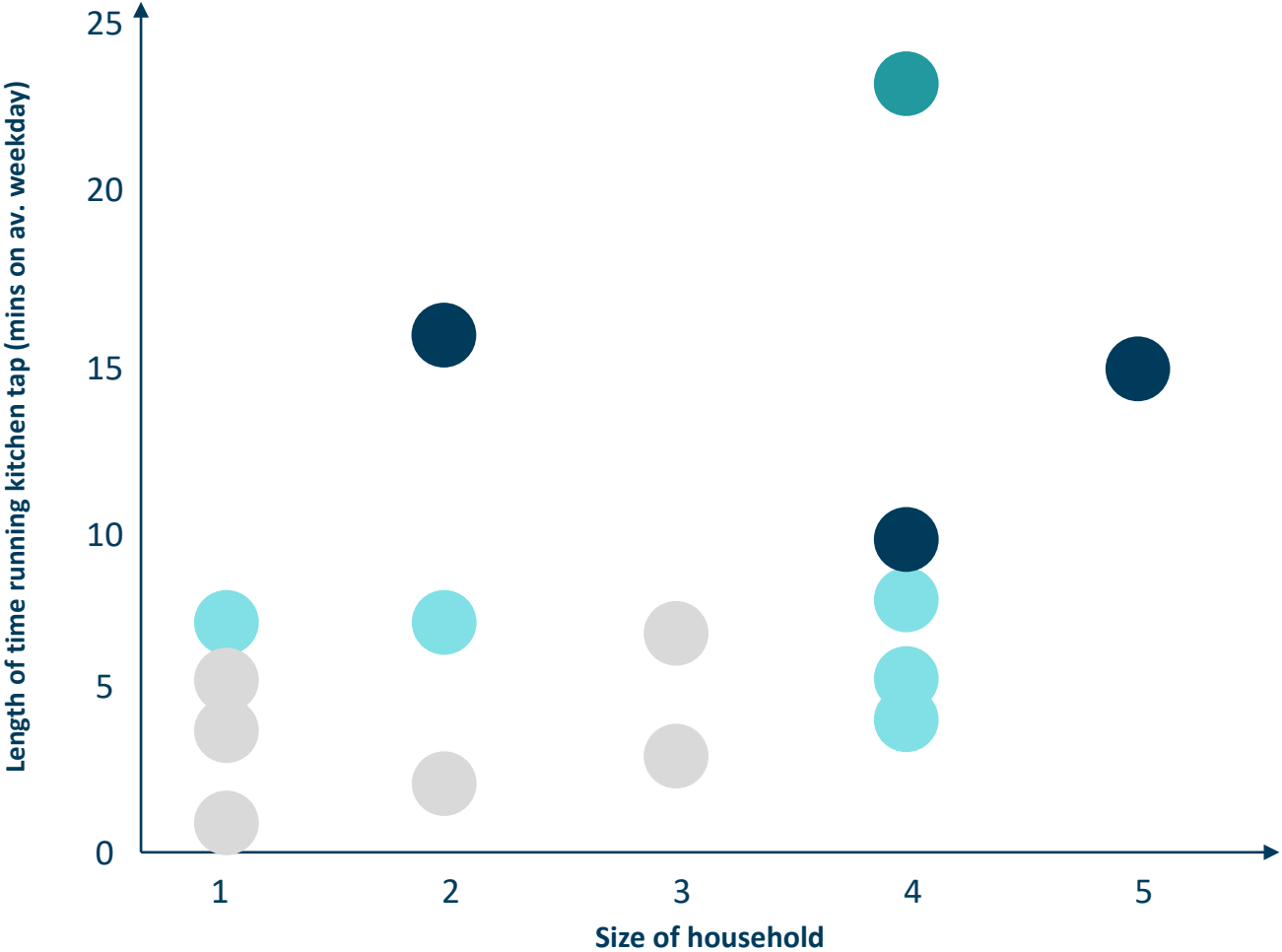


Washing up accounts for the majority of kitchen sink activity – across our sample, washing up accounted for around two thirds of all kitchen sink tap running time (this was similar on both weekdays and weekends).

But our sample provided a mixed picture of the impact of having a washing up bowl on kitchen tap water usage.

- Neither of the two highest usage households in the sample used a washing up bowl. But the video footage for these households indicates that it is their technique for doing the washing up (running the tap constantly with no plug in the sink) which goes some way to explaining their high water usage, rather than the absence of a washing up bowl per se.
- And some of the lowest water users in the sample did not use a washing up bowl.
- This indicates that the presence or absence of a washing up bowl is a relatively blunt measure for understanding water usage at the kitchen sink, and unlikely to be effective at predicting water usage.
 - Instead, washing up technique and other factors (time spent at home) appear more likely to predict water usage accurately.

The number of individual washing up events per day is closely correlated with kitchen tap running time



- Some households routinely did all their washing up in bulk once a day (for example, before dinner). Others washed up “little and often”, with more than 30 washing up events in a single day.
- The households with the most individual washing up events each day were the heaviest water users at the kitchen sink (if we take kitchen sink tap running time to be a reasonable proxy for overall water use).
 - Households with fewer washing up events generally only filled the washing up bowl with water once or twice a day – explaining their lower water usage than households who repeatedly filled the bowl through the day, often for only a handful of items at a time.
- This highlights that persuading consumers to wash up in a small number of consolidated batches could reduce water usage at the sink.



Total range of behaviours observed at the kitchen sink

Primary behaviour	Variations	Detailed observations
Washing up	Using a bowl	Around half of the sample used a bowl. Even within this, however, there were a range of techniques – with some running the tap for all / most of the time that they were doing the washing up; others refilling the basin periodically depending on the dirtiness of the water.
	Not using a bowl	<p>Around half of the sample did not use a bowl. Reasons for doing this included:</p> <ul style="list-style-type: none"> • visual aesthetic (the sink looks better without a bowl in it) • hassle (dealing with the bowl is annoying and makes the sink smaller) • cleanliness (the bowl gets dirty and is considered unhygienic) • difficulty finding a bowl that fits <p>Some used a plug and filled the sink. Others ran the tap constantly during the washing up. Some used a pan / big dish as a basin, washing this up last.</p>
Handwashing		<p>Handwashing was widely observed – although the extent of this varied depending on each individual household set-up.</p> <p>Many respondents told us that their diligence around handwashing had increased as a result of the pandemic – although many said that the frequency of handwashing and length of time spent handwashing had subsequently decreased again, returning closer to pre-pandemic behaviours.</p>

Range of behaviours observed at kitchen sink

Primary behaviour	Variations	Detailed observations
Filling small items with water		<p>Unsurprisingly, filling glasses / plastic beakers with water was a relatively common behaviour.</p> <p>For some households, however, this was almost totally absent – as they drink bottled water rather than tap water. When asked why they do this, respondents cited reasons of taste / habit for consuming bottled water.</p> <p>A very small minority of households displayed very specific behaviours around filling glasses – for example, one younger participant always filled his glass, emptied it out (as though rinsing) and filled it again before drinking any water, even though the glass was clean at the beginning of this process. His parents later observed this behaviour in the second interview and said that they had no idea this was his habit.</p>
Filling large items with water		<p>Filling the kettle and pans were another key behaviour. Some households displayed very water efficient behaviours in filling the kettle – only filling the kettle to the amount that they needed, or storing boiled water in a flask for later in the day. Others did not like reboiling water when making hot drinks, due to perceived differences in taste or quality – as a result, they often emptied and refilled the kettle prior to boiling water for tea, coffee or other hot drinks.</p>

Range of behaviours observed at kitchen sink

Primary behaviour	Variations	Detailed observations
Cleaning	Wiping surfaces Mopping Cleaning sink Washing vacuum cleaners Washing boots / shoes Wiping mobile phone screen	<p>There was huge variation across households in the extent to which the kitchen tap was run for cleaning purposes. This appeared very closely linked to a broad mindset around cleanliness or hygiene – although space in the kitchen was also a factor.</p> <p>Households where participants spent less time at home (e.g. because they worked away from home) tended to display fewer cleaning behaviours during the observation period. Where participants spent significant time at home, however (e.g. where not working or where working from home), cleaning behaviours involving the kitchen sink were more apparent.</p> <p>In one of our households, cleanliness behaviours were extremely frequent – and this had a knock-on impact on water usage. We observed up to 22 individual cleaning events in a single day (most frequently running the tap onto a cloth before wiping down surfaces or around the sink, as well as rigorously mopping the kitchen floor twice a week). In our interviews with this household, it was clear that hygiene was very important to household members – however, they also considered themselves environmentally friendly and had little awareness of the extent to which their cleaning behaviours affected their water use. Some behaviours (e.g. running the tap onto a cloth before wiping surfaces) also appeared reflexive and habitual rather than considered actions to improve cleanliness. There may be potential to reduce water usage by setting norms around the frequency of regular household cleaning behaviours.</p>

Range of behaviours observed at kitchen sink

Primary behaviour	Variations	Detailed observations
Pouring fats, oils and greases down the sink		<p>We observed some “good” behaviours in this respect, with a small number of our households using fat traps or wiping round oily pans / dishes with kitchen roll before washing. In most instances, this was due to direct personal experience of blocked pipes and the consequences.</p> <p>For a small number of households, we witnessed “very bad” behaviours in pouring high volumes of fats, oils and greases down the sink – typically after major cooked meals, such as roast dinners or steak nights. Although relatively infrequent events, the volumes of FOGs involved were large. When prompted, the main reasons for pouring these FOGs down the sink were due to the perceived time and hassle of seeking to dispose of them by other means, as well as some misconceptions. For example, one respondent told us that he thought liquid detergent could break down the oils and greases if he left everything in the sink for a few minutes.</p> <p>Across the sample, smaller volumes of FOGs were regularly poured down the sink as part of the washing up process – e.g. when left on a plate at the end of a meal. In most instances, respondents told us that the hassle to dispose of these by other means was not worth it given the volumes involved.</p>

Range of behaviours observed at kitchen sink

Primary behaviour	Variations	Detailed observations
Pouring other things down the sink		We also witnessed a series of other behaviours, including: <ul style="list-style-type: none">•Scraping food waste into the sink•Pouring coffee granules into the sink
Defrosting food		<p>Some households used the sink as a place to defrost food, for example by leaving packaged food in the sink for several hours during the day – as any excess moisture or liquid would go down the plughole.</p> <p>In one instance, we saw one participant adopt a more aggressive approach to defrosting meat, however. The participant opened a packet of frozen raw chicken and left it in the sink. He then poured four full kettles of boiling water over the chicken until he was happy that it was defrosted.</p>

Range of behaviours observed at kitchen sink

Primary behaviour	Variations	Detailed observations
Rinsing recycling		<p>Many of the participants regularly rinsed out used containers (such as tins, cans, jars or packets) before putting them into their recycling. The levels of thoroughness varied across the households.</p> <p>When pushed on this in the follow-up interviews, the primary reason given was to deter pests – many consumers told us that clean recycling was less likely to attract flies, wasps or even rodents. A small minority told us that rinsing the products was necessary for the recycling itself – that dirty containers would not be able to be recycled. As such, rinsing the recycling was seen as an environmentally friendly activity.</p>
Other behaviours		<p>We also witnessed a small number of other water usage behaviours at the kitchen sink across the observation period. These included:</p> <ul style="list-style-type: none">•Watering plants (directly from the tap)•Filling pets’ water bowls•Taps dripping (unbeknown to the participant) <p>These only accounted for a very small number of the events recorded by the motion-sensitive cameras.</p>

A photograph of a kitchen interior. In the background, there is a white refrigerator with a microwave on top. To the left of the refrigerator, there are several boxes of cereal and other food items on the counter. The wall is covered in white square tiles with some decorative mosaic tiles. A teal semi-transparent banner is overlaid across the middle of the image, containing the text "Appendix four: accuracy of recalled behaviour".

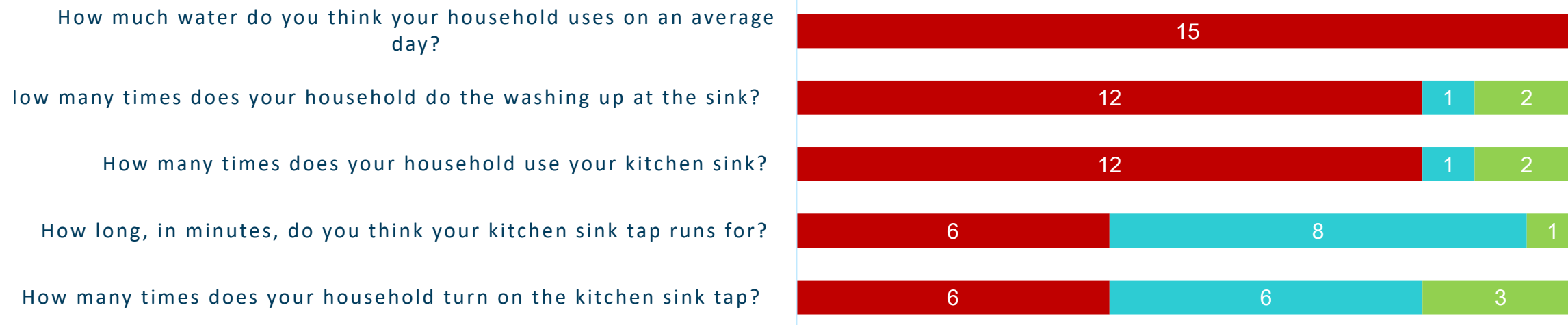
Appendix four: accuracy of recalled behaviour

Very few households recalled their own behaviour accurately with many underestimating

Before providing full details about the aims of the research study (i.e. exploring water usage and disposal of FOGs), we asked participants a series of questions to establish their recalled kitchen sink behaviour for the observation period. We asked these questions during the follow-up interview, just before reviewing video clips of their actual behaviour. The questions were asked consistently across the sample and were designed to replicate how the water sector currently asks consumers about their behaviour.

PARTICIPANT RESPONSES TO RECALL QUESTIONS

■ Underestimated ■ Overestimated ■ *About right



Unsurprisingly, participants found reporting on their overall daily household water usage very difficult

Overall household water usage*

- Many described this as the most difficult question that they were asked. All of our participants vastly underestimated how much water their entire household uses, with some saying as little as 7 litres per day. Most underestimated their household water usage by a factor of at least half.
- Some tried to answer this question by compartmentalising specific behaviours around the home – but found this challenging, they did not know how many litres are used in these individual behaviours.

Overall, participants have low awareness/understanding of how much water they actually use. They struggle to quantify volumes of water and are unable to visualise the amount that they use in a day. When it was revealed that the average person uses c.142 litres of water a day, respondents were generally shocked and surprised (watch video on right to see some respondent reactions).



Click to play video

Consumers greatly underestimated their own kitchen sink usage and washing up frequency



We asked households how many times their household uses the kitchen sink and how many times they do the washing up on an average day. Two factors shaped the responses that we heard:

1. **Frequency of behaviour:** for most of the sample, using the kitchen sink and doing the washing up were high frequency behaviours, making them hard to accurately recall. Where households spent less time at home and therefore had fewer events to recall (for example, because they worked away from home), they were generally more accurate.
2. **Interpretation of the question:** some respondents interpreted these questions in different ways from others, because the parameters can feel unclear – i.e. when a washing up moment starts or ends, or what counts as “using the kitchen sink”. Clearly, our own definition of these events (we tallied each motion-activated video clip rather than seeking to separate these out further into individual moments) is also subjective and sometimes did not align with participants’ (implied) definitions.

Kitchen sink usage*

- Some respondents answered this question by thinking just about the number of times the kitchen sink tap is turned on, whereas others considered a much wider repertoire of behaviours such as making a drink, filling the kettle or soaking items to be washed.
- Some felt confident answering on their own behalf but were less certain about accurately reporting what others in their household do.

Doing the washing up*

- Most respondents tended to bulk together washing up moments and often anchored their answers around meal times – the majority underestimated when self-reporting.
- We observed that **many households approach the washing up by doing it as they go, little and often – for a single item or just a few items at a time.** All households with a dishwasher underestimated how many times they do the washing up at the kitchen sink.

**Questions we asked respondents: approximately how many times does your household use your kitchen sink on an average weekday? Repeat for weekend day; approximately how many times does your household do the washing up at the sink on an average weekday? Repeat for weekend day*

Households also found it difficult to estimate their use of the kitchen sink tap

Running time of kitchen sink tap*

- Only one household was even close to their actual kitchen tap running time – and they told us that they had “no idea” and had guessed.
- Among the rest of the sample, there was an almost even split between underestimated and overestimated answers – with guesses ranging from underestimating by 20 minutes to overestimating by 56 minutes.
- There was no obvious pattern in terms of the types of household who underestimated and overestimated.

The wide range of answers, and participants’ comments to us in the depth interviews, indicated that households found it very difficult to quantify how long they run the kitchen sink tap for.

Many described this as a difficult question and described their answer as a guess.

Number of times kitchen sink tap was turned on*

- No households were very close to the correct answer for their household – with an almost even split between underestimated and overestimated answers – with guesses ranging from underestimating by 35 to overestimating by 18.
- There was no obvious pattern in terms of the type of household which underestimated and overestimated for each question.

Turning the tap on is often a momentary, subconscious behaviour – done without thinking, many participants may not even register that they have turned on the tap.

In a shared household, it is typically very hard for one person to accurately estimate the number of times that the whole household might have turned on the tap in a single day.

**Questions we asked respondents:*

Approximately how long, in minutes, do you think your kitchen sink tap runs for on an average weekday?

Approximately how many times does your household turn on the kitchen sink tap on an average weekday? Repeat for weekend day



Appendix five: consumer reactions to communications examples

Stimulus: Households were shown at least one example from the materials included below



Get water fit app

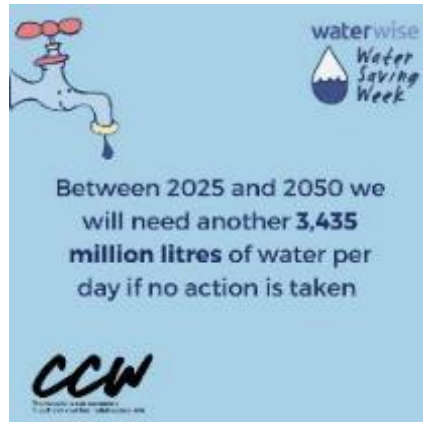
If you've ever wondered "how much water does a shower use in 10 minutes?" or "how much water does a dishwasher use every day?" then GetWaterFit can tell you, as well as offer advice to get your home more water efficient.

Plus, when you complete the water calculator, you'll be able to instantly claim some FREE water saving devices that we'll send to you in the post.

It's free to sign up and doesn't take long to complete, so start saving water today

Sewer operative video: <https://www.southernwater.co.uk/help-advice/keep-it-clear/fat-oil-and-grease>

Reactions to specific sector communications (1)



Fact-led but lacks bigger picture explanation

- Striking/shocking fact – short and simple to understand.
- But does not explain why more water will be needed.
- Uncertainty as to whether this is a UK or global statistic.
- Difficult to quantify so many millions of litres.
- Execution: icons look childlike, lacks standout.



More emotive message but execution lacks standout

- “Greener tomorrow” evokes positive thinking around saving resources for future generations.
- Use of language: “close tap” not seen as an everyday phrase for describing turning off the tap.

Reactions to specific sector communications (2)



Behaviour targeted but feels too broad

- Core message is clear - use less water - but fails to explain why.
- Tips not relevant for all – e.g. those without a garden, dishwasher or car.
- Can feel too family orientated and so lacks relevance for non-families.
- Water-saving tips are familiar to some but many do not find this comms example motivating enough to change behaviour.
- Execution: whilst colourful, this can distract – some say that this is cluttered; basic/DIY, lacking impact.



Good idea in theory but will consumers be motivated use it?

- The idea of using an app to save water generated a positive response.
- But some question how likely they would be to use it.