

E. coli and Summer Weather in the Kawartha Lakes (2001 – 2025)



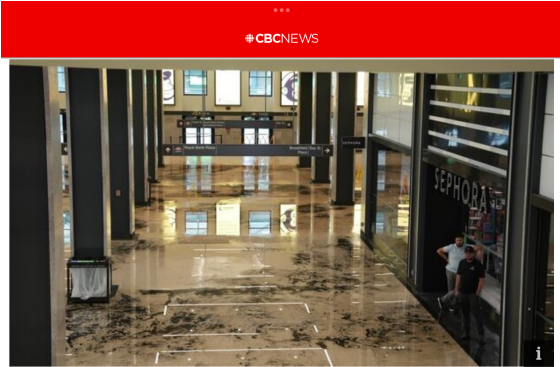
Bob Bailey
Vice-Chair – KLSA
Professor – Ontario Tech

A deadly E. coli outbreak in Walkerton, Ont., changed everything 25 years ago

By The Canadian Press
Published: May 17, 2025 at 12:33PM EDT



Bruce Davidson remembers the E. coli outbreak that ravaged his hometown 25 years ago



500 Olympic-sized pools of partially treated sewage hit Toronto's waterways after storm

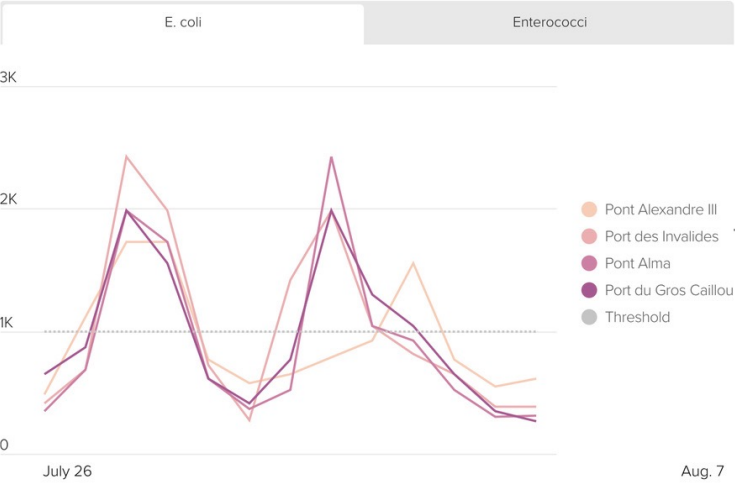
6 public beaches in the city are currently marked unsafe for swimming

Posted: July 18, 2024 5:45 PM EDT
Last Updated: July 18, 2024

Rochelle Raveendran, CBC News

If you live in the GTA, you might want to put your beach day plans on hold.

Daily concentrations of E. coli and enterococci in cfu per 100 milliliters. The highest value for each day (across measuring stations when applicable) is represented in the chart.



World Triathlon standards indicate that concentrations of E. coli and enterococci should not exceed 1,000 and 400 CFU/100ml, respectively. Below these thresholds water quality to be considered "good," which is required for a competition to proceed.

SOURCE: City of Paris, POLITICO research

By Giovanna Cei

River Seine reopens to public swimming

Taking a dip in the Paris waterway has been illegal since 1923 because of pollution and risks posed by river navigation

SYLVIE CORBET
JACQUES SCHAEFFER (PARIS)

For the first time in over a century, Parisians and tourists will be able to take a refreshing dip in the River Seine. The long-polluted waterway is finally opening up as a summertime swim spot after a €4.5-billion (US\$5.8-billion) cleanup project that made it suitable for Olympic competition last year.

After new swimming sites on the Paris riverbank will open on Saturday — one close to Paris Notre-Dame Cathedral, another near the Eiffel Tower and a third in eastern Paris.

Swimming in the Seine has been illegal since 1923, with a few exceptions, because of pollution and risks posed by river navigation. Taking a dip outside bathing areas is still banned for safety reasons.

The Seine was one of the stars of the Paris Olympics. In areas where the water was so polluted that it was unfit for swimming, the city had to build temporary swimming pools. That didn't go without challenging levels of bacteria, which prompted some competitions.

This city's authorities have given the green light for the public opening, with water quality reaching consistently in line with European regulations.

It's a symbolic moment when we get our river back," said Lucie Woodhead, who will participate in the first amateur open water competition in the Seine on Sunday.

Paris Mayor Anne Hidalgo just before the start of the Olympic Games is confident things will go well.

"We're going to enjoy swimming in being there and setting an example," she said. "One people will see that in the end there are hundreds of people who have fun and enjoy it every one will want to go."

For families, going to take a dip with the kids, making little splashes in Paris, it's extraordinary.



Lucie Woodhead of Fludon takes a sample from the River Seine to test the water quality on Thursday for the opening of three Seine swimming sites.

Officials have given the green light for them to open, with water quality consistently in line with European regulations.

European regulations since the beginning of time, with only two exceptions owing to rain and boat-related pollution, Mr. Fludon said.

It's the re-opening to the Games, the authorities opened new swimming sites and created a huge storage basin meant to prevent as much bacteria-laden wastewater as possible from spilling directly into the Seine when it rains.

Woodhead said that previously emptied their sewage directly into the river were required to hook up to municipal sewer systems.

Some towns upstream from Paris also saw their wastewater connected to treatment plants instead of the rainwater system flowing directly into the river.

Paris Deputy Mayor Pierre Baudouin said water tests done to confirm it's safe to swim. As on French beaches, different colored flags will inform visitors whether or not they can go in.

"Green means the water quality is good. Red means that it's not good or that there's too much bacteria," he said.

Tests have been in line with World Aquatics stressed the conditions met the sport's accepted thresholds.

The legacy of those efforts is already evident, with the Seine now open for public swimming. A positive example of how sports can drive long-term community benefits," the organization said in a statement to the Associated Press.

Benjamin Stadelmann, founder and CEO of Fludon, a Paris and Los Angeles-based water monitoring tech company, has routinely and independently tested bacterial levels in the Seine for several years. Testing being in line with current regulations, the official water testing methodology has limitations and underestimates bacteria, he said.

"What we see is that the water quality in the Seine is highly variable. It's only a few days in a swimming season where I would say water quality is acceptable for swimming."

"All we can say is that we can take a hand and not look at the science today does not support the current assessment of water safety used in the rivers around Paris."

and we think that there's a major risk that it's not being captured at all," he said.

Some Parisians also have shown skepticism toward the idea of swimming in the Seine. The feeling is often reinforced by the water's murky colour, floating litter and multiple tourist boats in some places.

Emmanuel Stadelmann, a real estate agent, said he would not be afraid of swimming, but rather "a bit disgusted. It's more the worry of getting dirty than anything else at the moment."

Until the end of August, swimming sites will be open for free at scheduled times to attract with a minimum age of 10 or 14 years, depending on the location. Lifeguards will keep a watchful eye on these first dips.

"It's an opportunity, a dream come true," said Olyvia Montaudou, a project manager in Paris. "It'd be a dream if the Seine becomes drinkable, that would be the ultimate goal, right? But already swimming in it is really good."

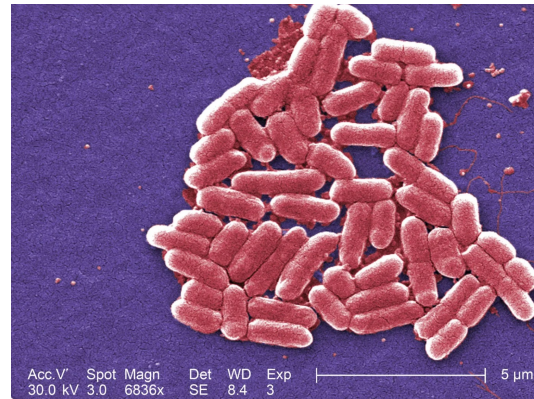
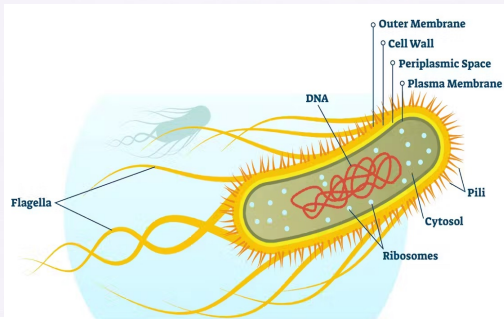
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The SIBLEY

FIELD GUIDE TO *E. coli*

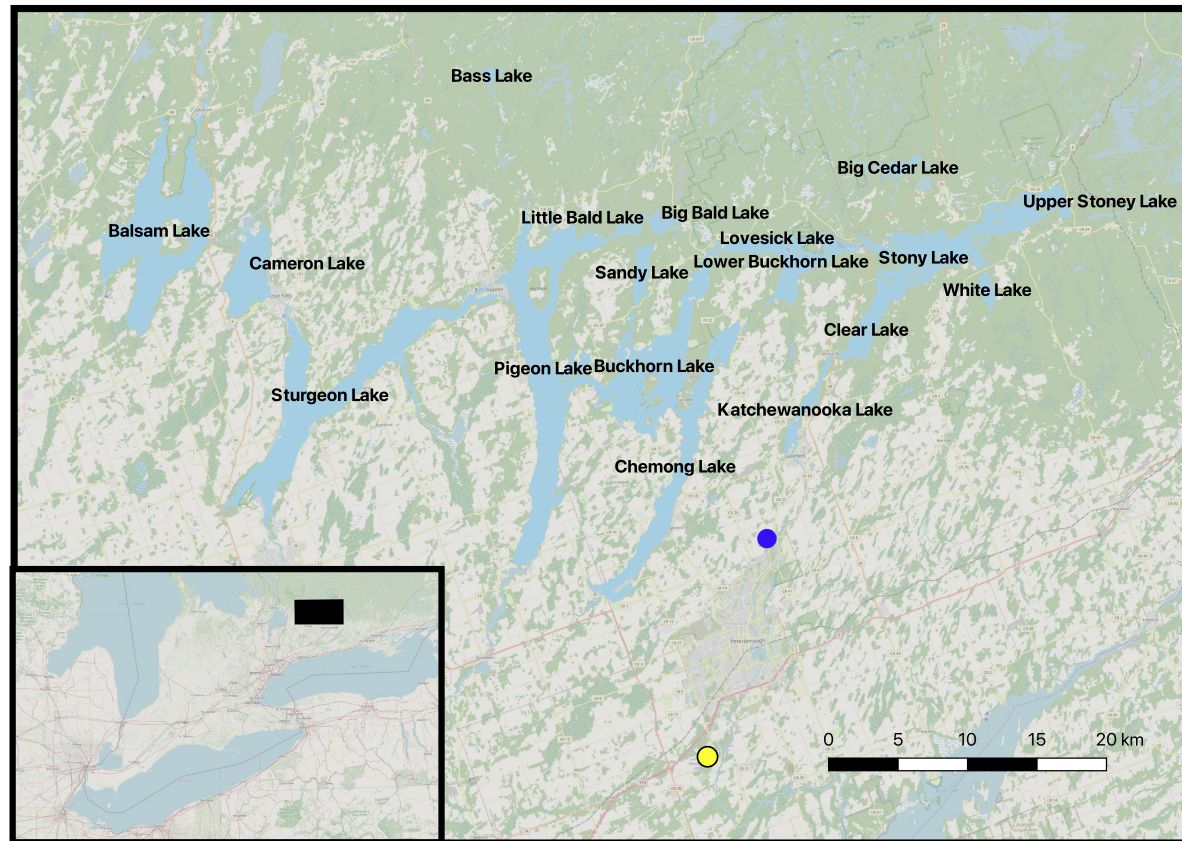
of Eastern North America

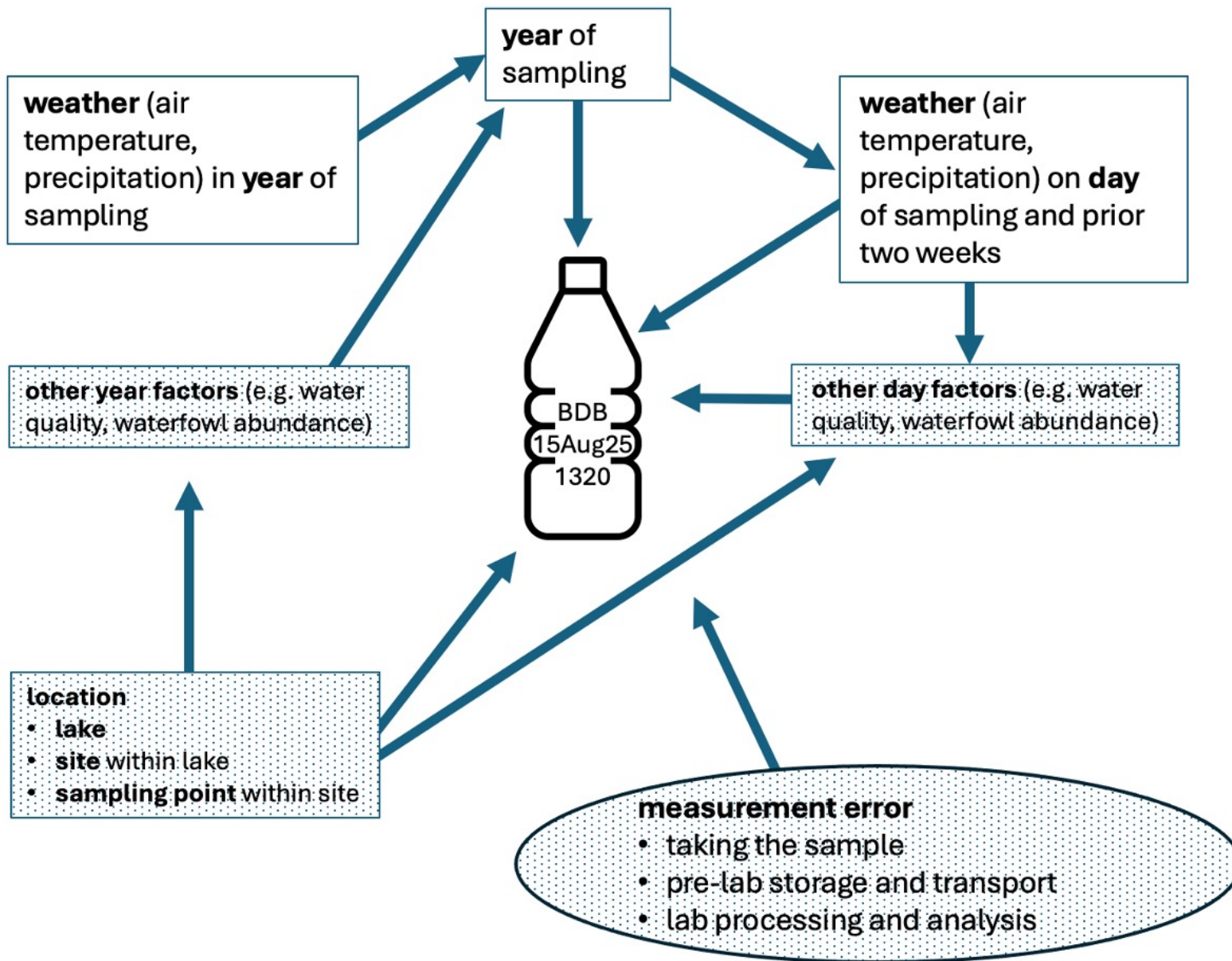


human hair 50 – 100μm

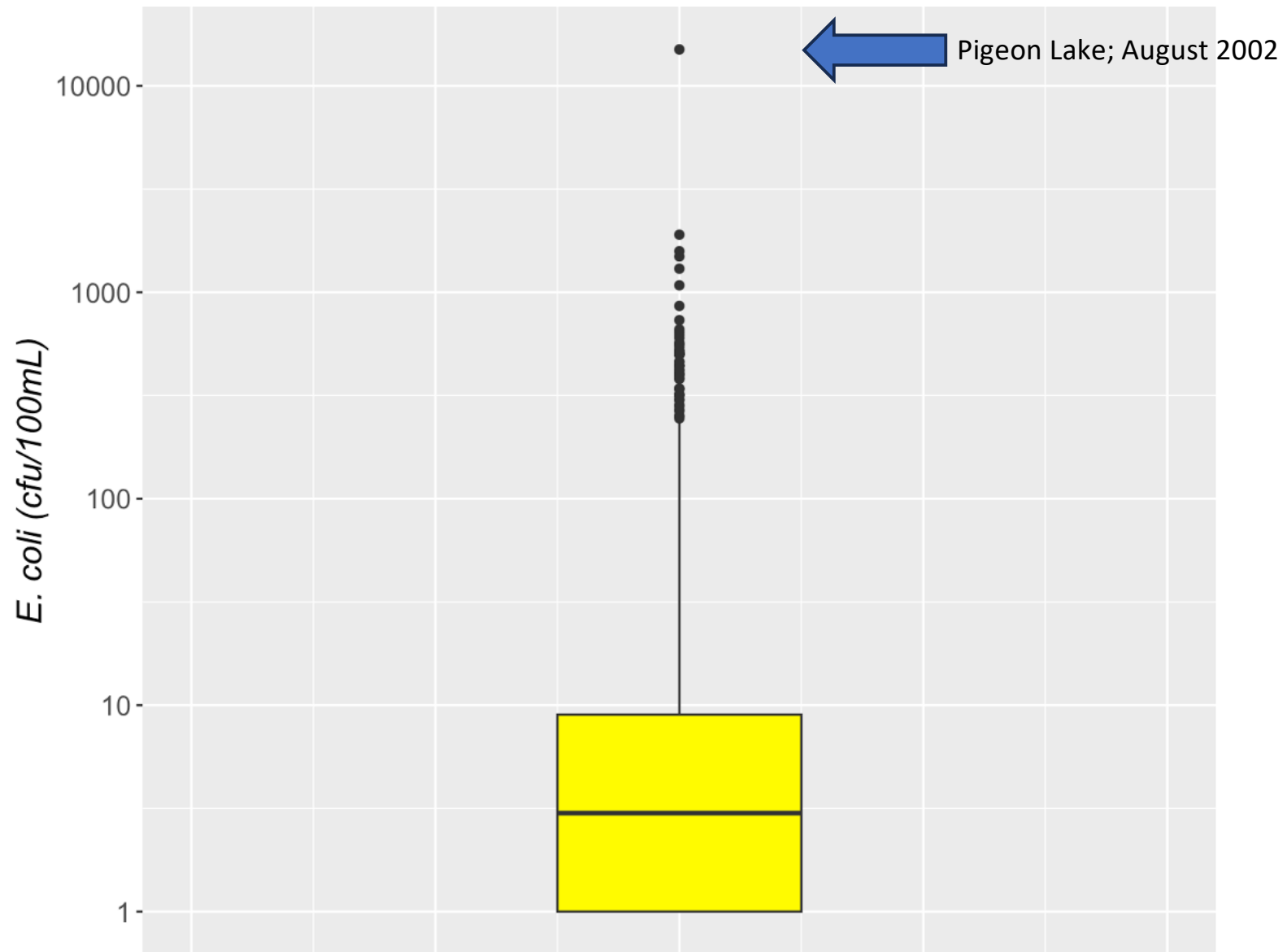


More than 11,000 samples from 21 lakes over 25 years....

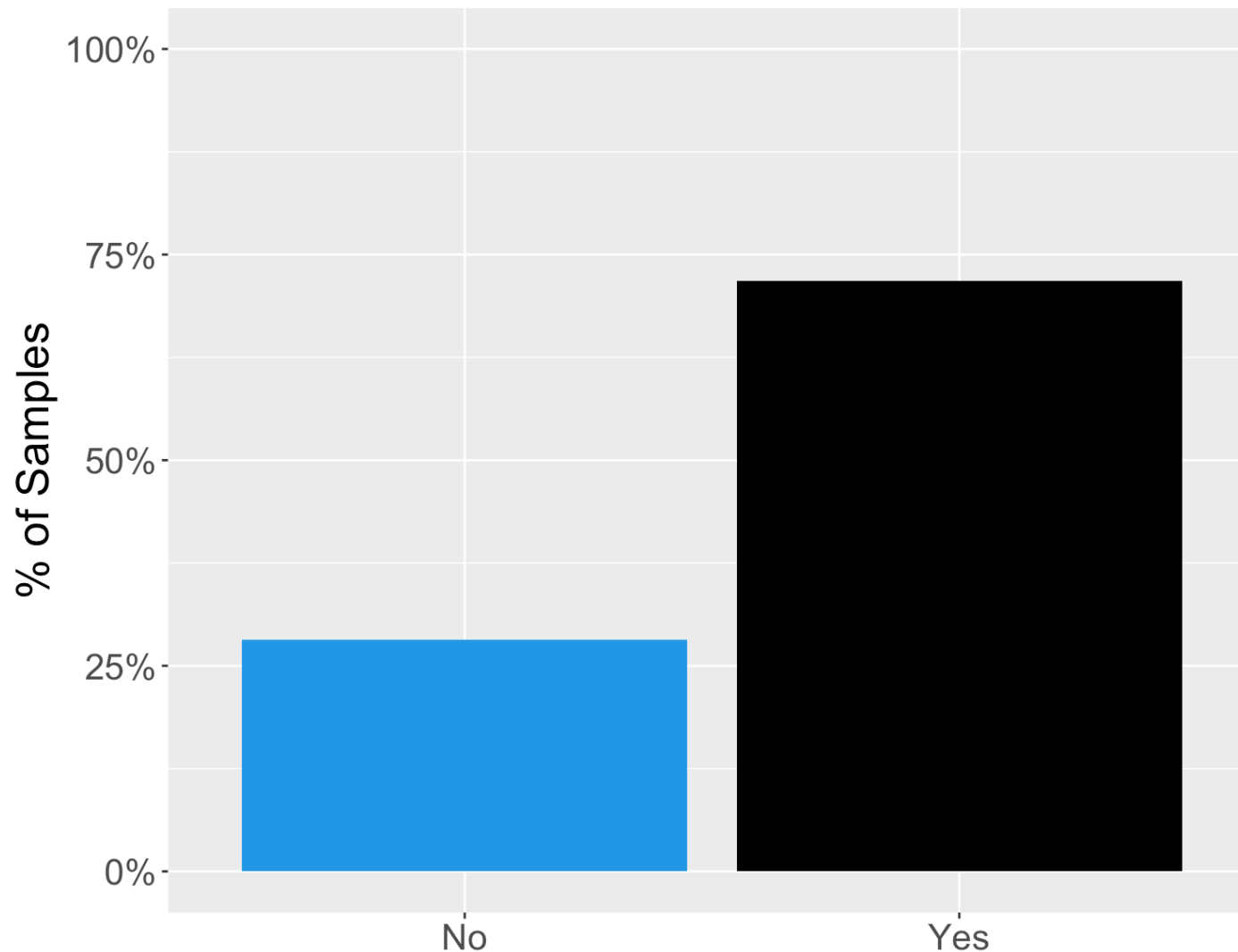




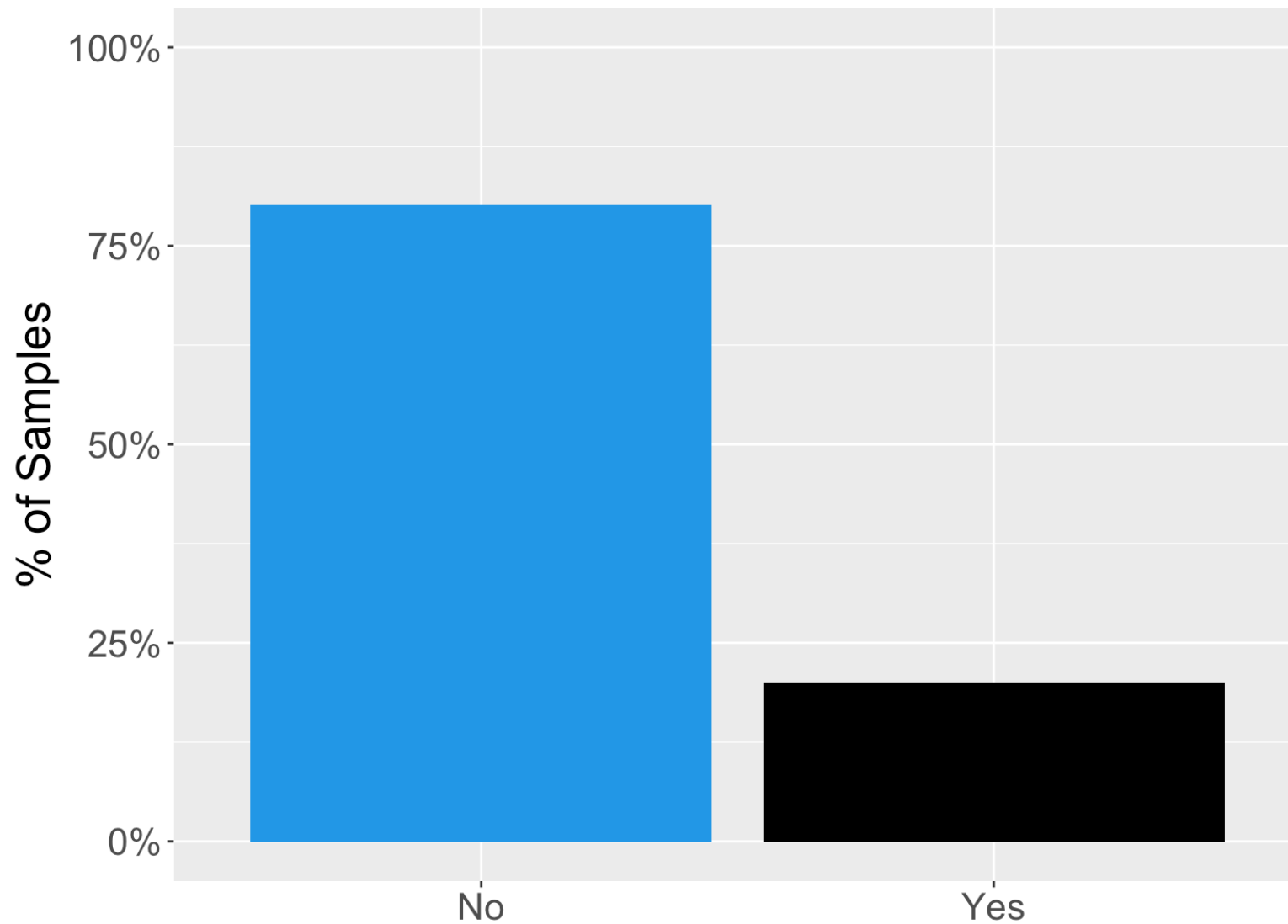
How much *E. coli* did we find (2001-2025)?



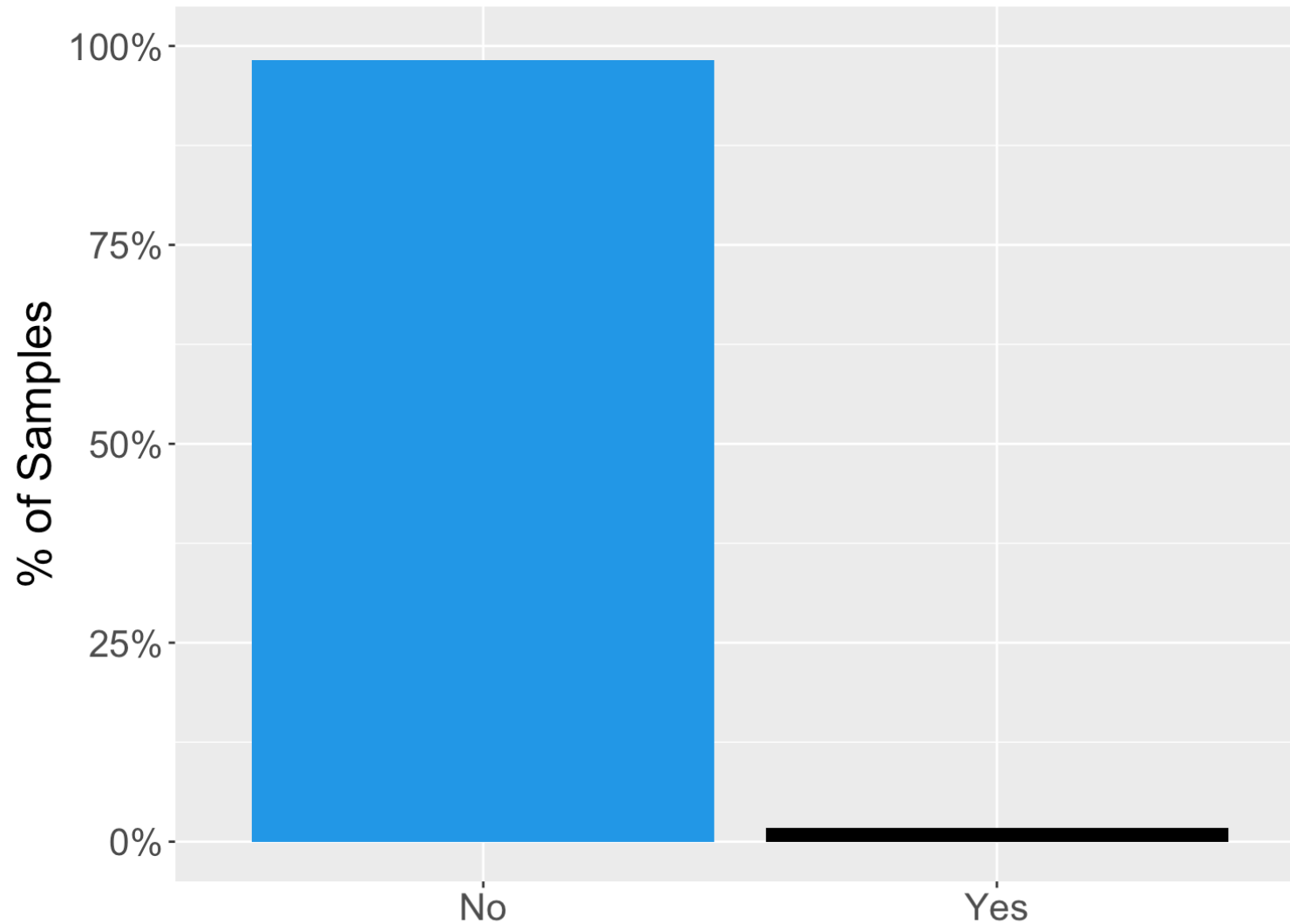
What % of samples had *E. coli* > 0 cfu/100mL?



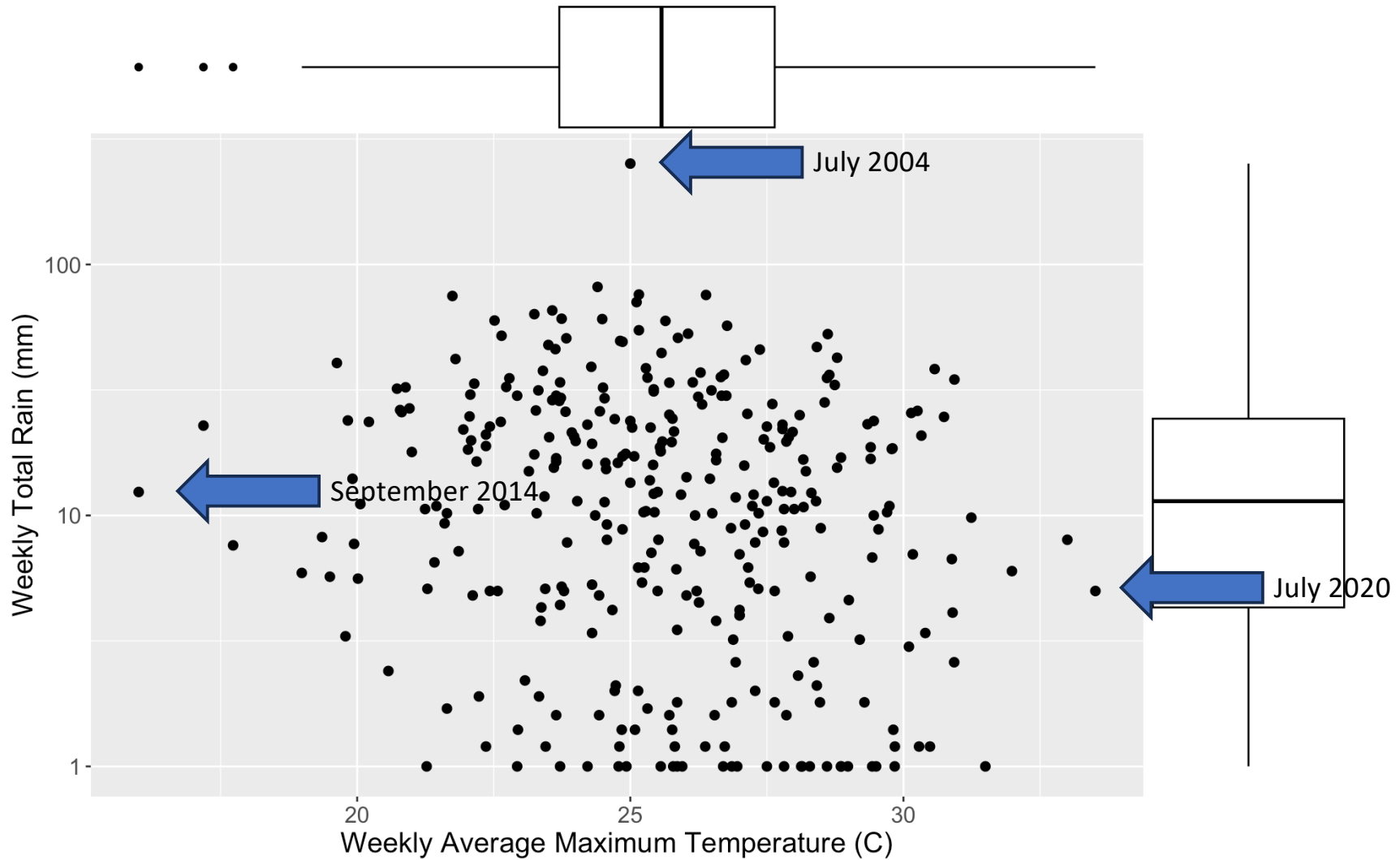
What % of samples had *E. coli* > 10 cfu/100mL?



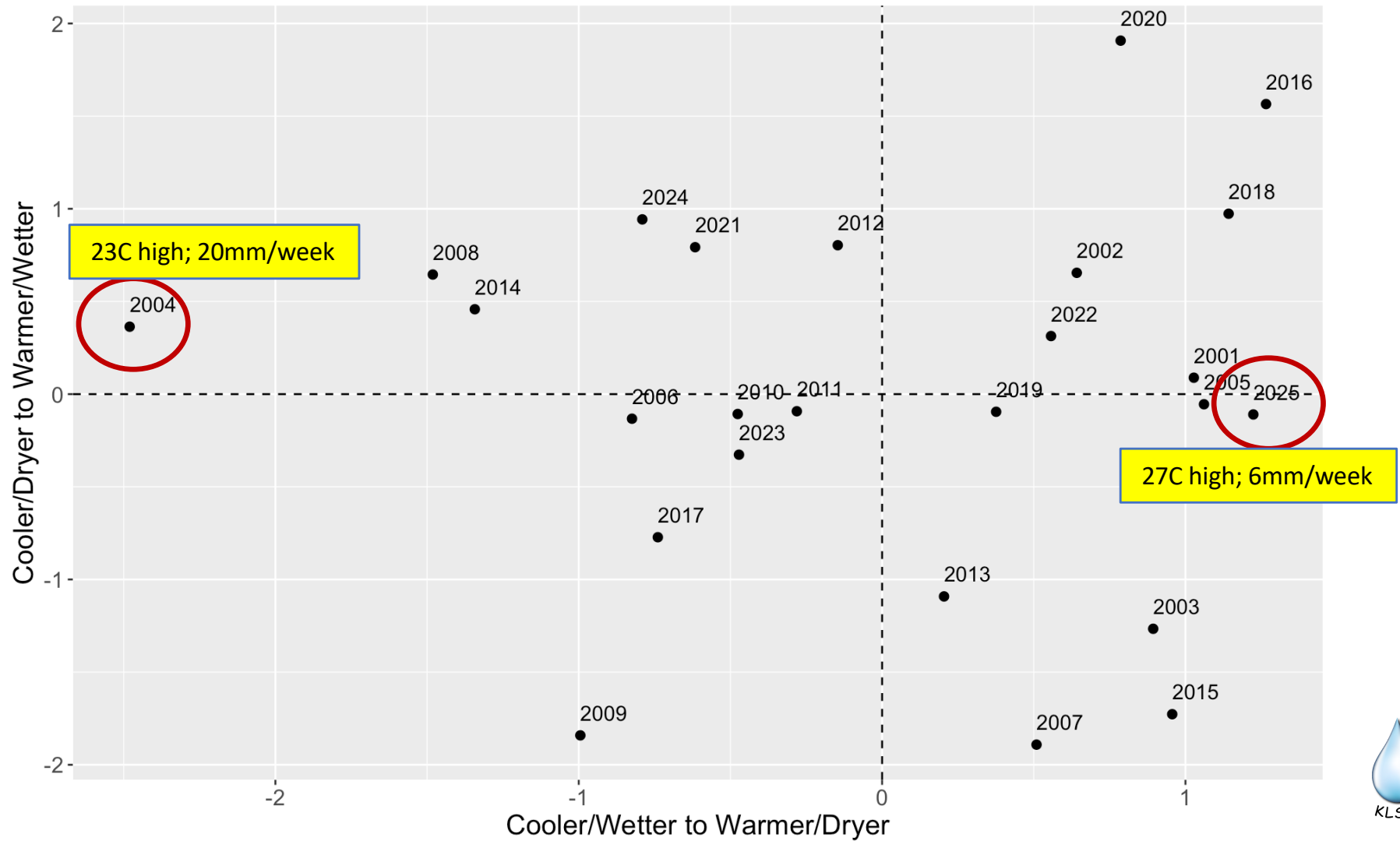
What % of samples had *E. coli* > 100 cfu/100mL?



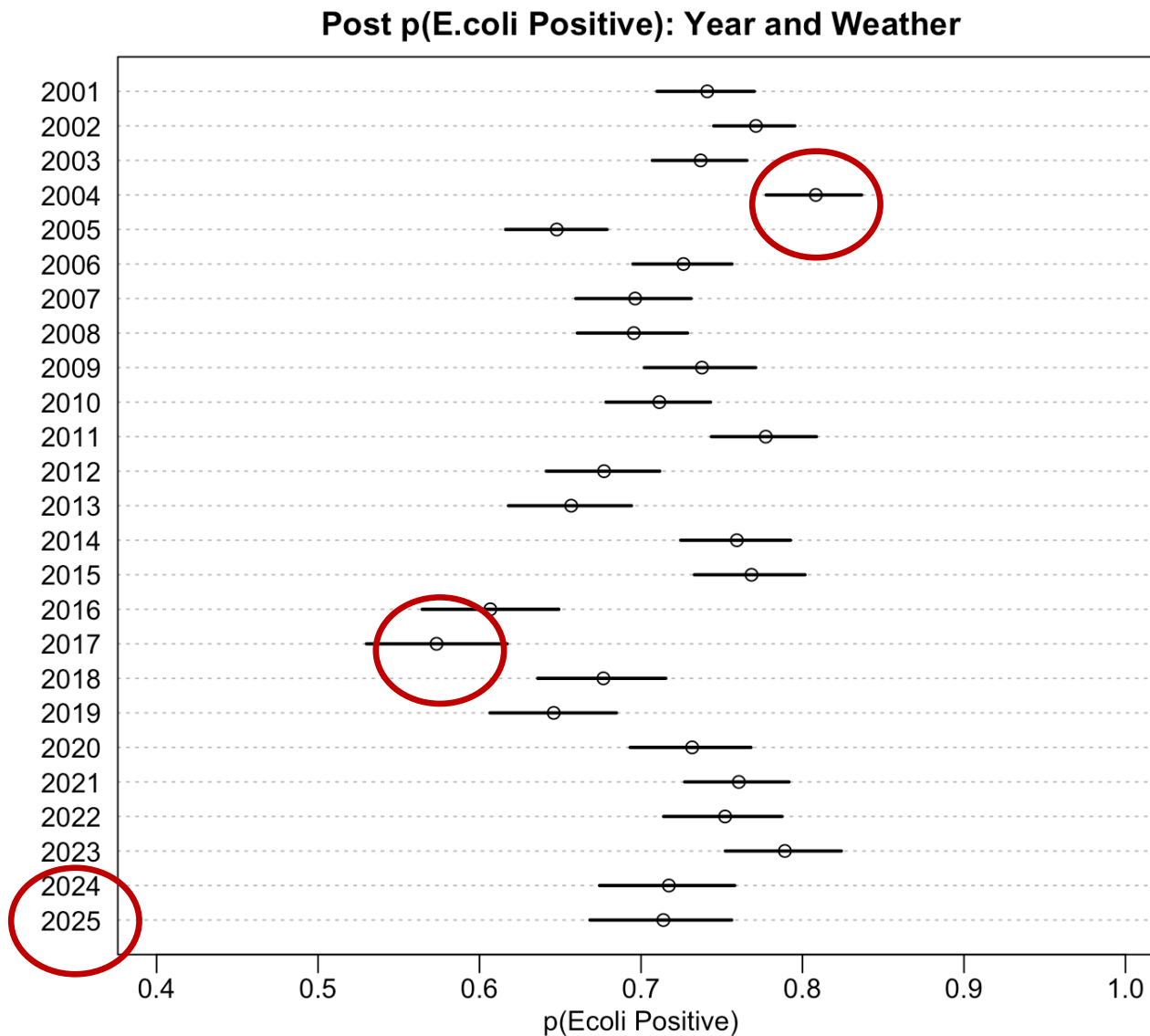
How has the summer weather been (2001 – 2025)?



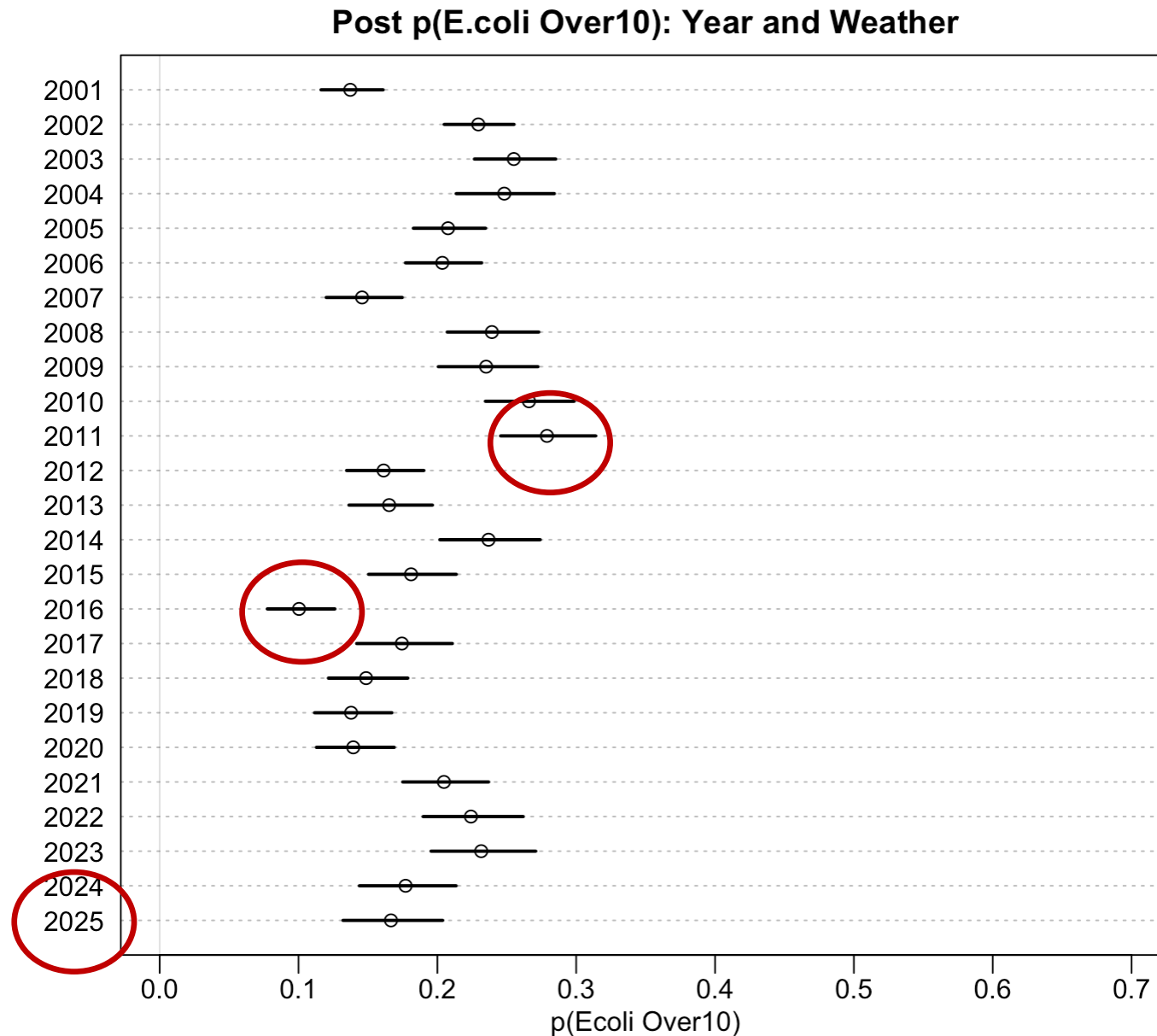
How has the summer weather been (2001 – 2025)?



How has the chance of *E. coli* > 0 cfu/100mL varied?



How has the chance of *E. coli* > 10 cfu/100mL varied?

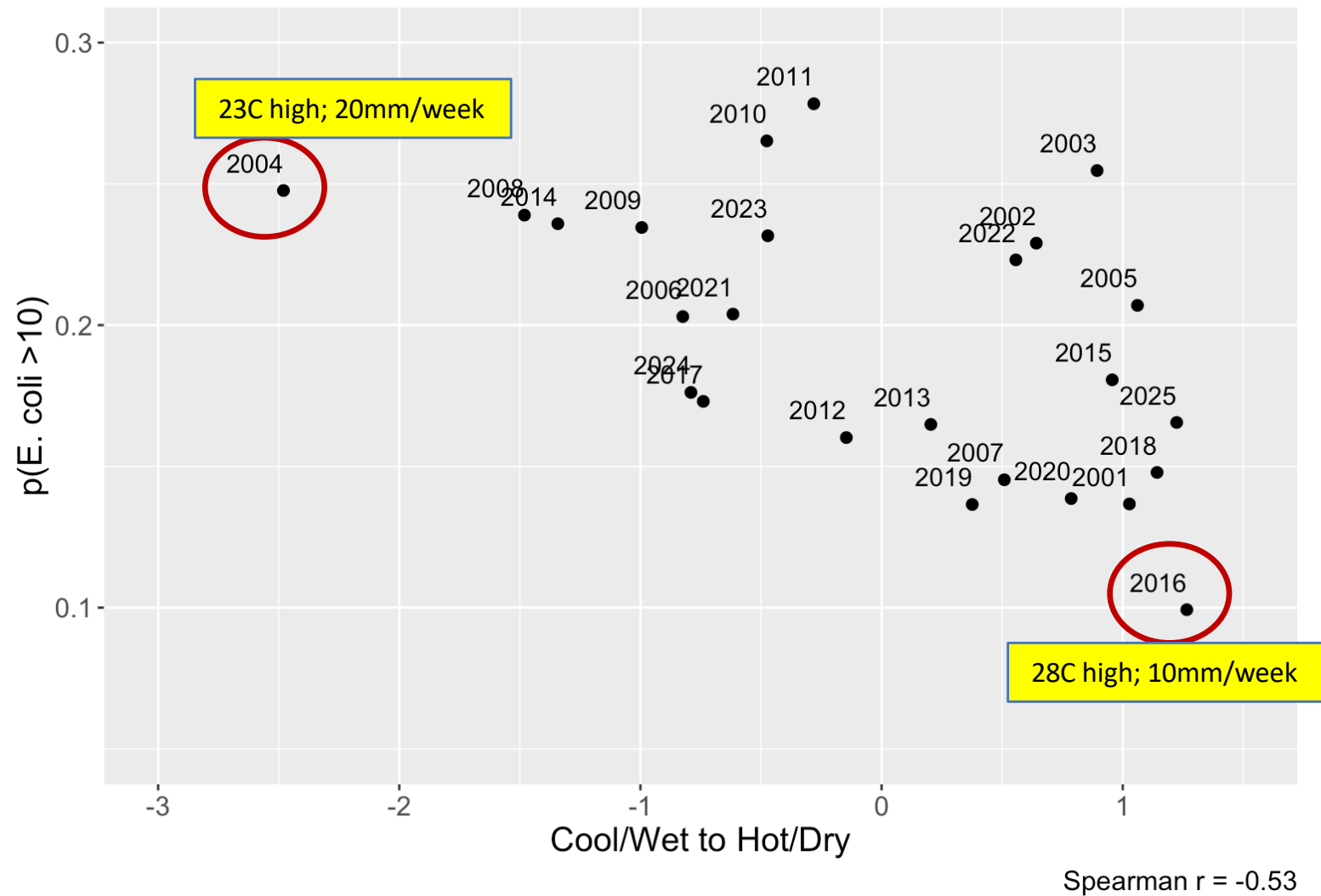


How has the chance of *E. coli* > 10 cfu/100mL varied?

- 4% *increased* chance of > 10 cfu/100mL with a 5°C increase in maximum temperature in the week of sampling
- 1.5% *increased* chance of > 10 cfu/100mL with 50mm more rain in the week of sampling



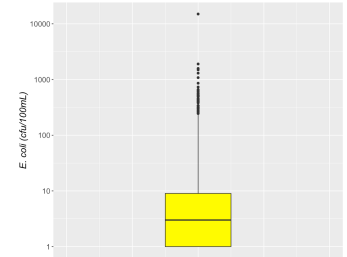
How does summer weather affect the chance of *E. coli* > 10 cfu/100mL?





Take this home...

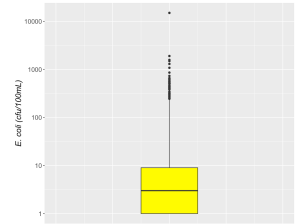
- ***E. coli* has been low in Kawartha Lakes over the last 25 years**





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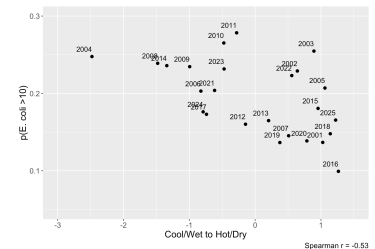
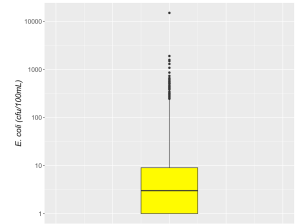
- *E. coli* has been low in Kawartha Lakes over the last 25 years
- **Pre-sampling weather modestly affects the chance of an above average *E. coli* sample**





Take this home...

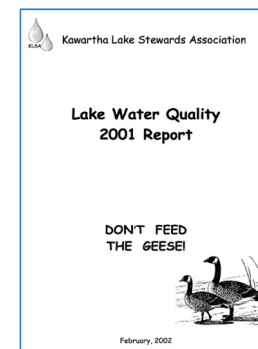
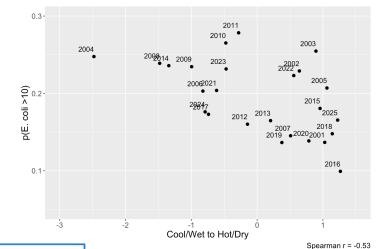
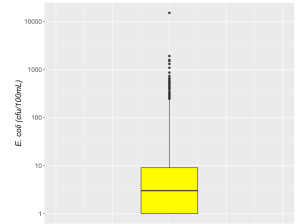
- *E. coli* has been low in Kawartha Lakes over the last 25 years
- Pre-sampling weather modestly affects the chance of an above average *E. coli* sample
- In any given year, the summer weather affects the chance of an above average *E. coli* concentration





Take this home...

- *E. coli* has been low in Kawartha Lakes over the last 25 years
- Pre-sampling weather modestly affects the chance of a positive *E. coli* sample
- In any given year, the summer weather affects the chance of an above average *E. coli* concentration
- **Rare spikes in *E. coli* concentration are most likely due to site-specific abundance of waterfowl and other local factors**



Fall

Meeting
27Sep25

A scenic photograph of a calm lake with a person in a red kayak in the middle ground. The lake is surrounded by dense evergreen trees, and the sky is clear and blue. The water reflects the surrounding landscape.

Thanks to KLSA and all
Volunteer *E.coli*
Samplers!