

Evidence of Candlewood Lake Contamination from Septic Systems in Brookfield  
April 11, 2022

**Question:**

What is the proof that the Lake is contaminated from failing septic systems and not goose droppings?

**Response:** (From Dr. Ray Sullivan, Brookfield Health Director)

The Brookfield Town Beach has been closed on several occasions over recent years. The problem has been studied extensively. It is known with certainty that it is not the geese. The lake has been monitored weekly, sometimes more than once a week, during peak periods for what are referred to as "Coliform bacteria." This is more of a waste basket of bacteria. Thankfully, Mary Knox, Parks and Recreation Director, now monitors for the more specific organism called "entero-pathogenic *E. coli*" and not the generic "*E. coli*".

Brookfield is particularly concerned with toxicity to humans and therefore testing focuses on the "entero-pathogenic" form of *E. coli*, specifically a strain called *E. coli* 0157.H7. This is also looked for in food-borne illnesses. A scientific article is attached below which may better elucidate the issue.

The *E. coli* 0157.H7 organism derives from ONLY human sources and is the most toxic to other humans. Geese, cattle and other animals will carry other bacteria in the Coliform group – but not *E. coli* 0157.H7! The geese certainly make a mess of the docks and shoreline. This is a problem that many lakes and ponds in CT are facing. Brookfield also monitors weekly for Toxic Blue-green algae. Although numerous algae blooms have been observed in recent years, none of them have been found to contain toxins. Separately, the frequency of algae blooms around Candlewood Lake (one was observed as late as Dec. 4 last year) is likely derived from the nutrients—nitrates and phosphorus—spilling into the lake from septic systems and lawn fertilizer runoff, as best we can determine. Hope this clarifies the issue.

**Question:**

Where do the recent lake studies show that the lake is polluted at least in part by sewage waste?

**Response:** (From the WPCA)

At the WPCA website there is a conclusive study showing that the lake is polluted, and that the pollution is in part caused by sewage waste.

See [https://brookfieldwpc.org/pdf/Candlewood Peninsula Sewering Impact on Water Supplies.pdf](https://brookfieldwpc.org/pdf/Candlewood%20Peninsula%20Sewering%20Impact%20on%20Water%20Supplies.pdf)

The table on Page 15 was taken from a recent report and repeated here. It shows that drinking water contains high levels of nitrate, close to the reportable limit of 10mg/l for Arrowhead and Candlewood Shores well water. Notice the presence of boron, artificial sweeteners and PFAS which can only come from septic discharge.

On Page 23 of the same report, a hydraulic study of well water recharge suggests that 25% of the septic flow recharges into the wells. The wells receive 75% of their supply from rainwater seepage and inflow to the lake. But this means that 75% of the discharge from septic systems flows into the lake. The lake is showing about 6 parts per trillion of PFAS. That can only come from septic systems, not any other source of human activity.

# Potential disease transmission from wild geese and swans to livestock, poultry and humans: a review of the scientific literature from a One Health perspective

Journal of Infection Ecology and Epidemiology, 10 Apr 2017

Prevalence of *E. coli* in Canada goose droppings in parks in the USA varied considerably among seasons (as low as 2% in the cold season, and up to 94% in the warmest months;  $n = 397$ ), and further the proportion of *E. coli* with human virulence factors was low (2%).<sup>[99]</sup> The authors concluded that Canada goose faeces do not pose a significant risk to human health, but that it is nevertheless wise to minimize contact with faecal material and to remove shoes before entering homes. It has been shown that Canada geese can be a relevant source of *E. coli* on beaches in North America <sup>[100,101]</sup> and that a low number of these birds carry enteropathogenic *E. coli* (8%,  $n = 90$ ),<sup>[102]</sup> but this has not been linked to disease in humans.

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Also see the discussion with satellite pictures showing clear evidence of Phosphorous contamination in Candlewood Lake in extended periods of no rain. With no rain, the primary hydraulic flow of water into the lake is from septic discharge.

<https://brookfieldwpc.org/brookfield/studies-and-plans/lake-pollution-focus/>

Summary:

Three independent factors show contamination from septic systems:

- 1) Human *E. coli* at the town beach.
- 2) Deep wells test for high nitrates, boron, artificial sweeteners and PFAS, for example.
- 3) High phosphorous concentration in lake after extended period of no rain.