

# Do seasons have effect on e coli levels essay

[Environment](#)



**ASSIGN  
BUSTER**

\n[[toc title="Table of Contents"](#)]\n

\n \t

1. [Agent](#) \n \t
2. [Allowable Maximum Contaminant Level Goal](#) \n \t
3. [Decision](#) \n \t
4. [52050 words](#) \n

\n[/toc]\n \n

Escherichia coli ( E. coli ) is a common species of bacteria that lives harmlessly in the bowels of worlds and animate beings. The bacteria can besides found in watercourses and other H2O beginnings as it is passed out of the organic structure in fecal matters. E. coli is a common word that is frequently associated with H2O pollution. In the Msunduzi River in Pietermaritzburg trials are conducted every twenty-four hours to cipher the figure of E.

coli present per 100 milliliter of H2O. These trials prove to be really of import for prospective canoeists desiring to take portion in the popular canoe endurance contest. However there are many colonies along the Msunduzi River that get affected by the H2O pollution on a day-to-day footing.

This purpose of this study is to find whether or non there is a connexion between E. coli and the seasons and how the E. coli affects the people populating along the Msunduzi River. 1. How E.

coli enters the Msunduzi RiverE. coli is found in the gastro-intestinal piece of land of most worlds and animate beings shortly after birth. For this ground,

<https://assignbuster.com/do-seasons-have-effect-on-e-coli-levels-essay/>

E. coli is invariably being passed out of the organic structures in human and carnal waste. From here there are many ways in which E. coli gets into the H<sub>2</sub>O. Along the Msunduzi River there are many farms with cowss and feedlot. During heavy rainfall the E.

coli is washed, along with the fecal affair, into rivers and watercourses, all come ining the Msunduzi River. There are besides sewage plants along the Msunduzi River. When there is heavy rainfall, the cloacas can non get by with the extra H<sub>2</sub>O and sewerage pipes overflow, therefore exponentially increasing the E.

coli degrees in the river. Some people who live in rural colony along the river do non hold the appropriate cavity latrines or lavatories, and so the river is used to dispose of fecal affair. In some instances there are pit latrines but they are excessively near to the river and the feaces seep into the river along with the E.

coli. 1. 1. Use of E.

coli as a H<sub>2</sub>O quality index Coliform bacterium is non infective itself, nevertheless it is a really good index of what other disease doing bacteriums could be in the H<sub>2</sub>O. E. coli is a coliform bacteria that is present in both human and carnal bowels and for this ground it is a good indicant of other pathogens present in the H<sub>2</sub>O. If there is a batch of E. coli in the H<sub>2</sub>O, this means that there are many other types of bacteriums in the H<sub>2</sub>O every bit good, of which some could be infective.

The recognized figure of E. coli /100ml of imbibing H<sub>2</sub>O is zero. E.

<https://assignbuster.com/do-seasons-have-effect-on-e-coli-levels-essay/>

coli is heat sensitive and H<sub>2</sub>O could be sterilized by boiling it. People populating aboard or near to the Msunduzi River should sterilise their H<sub>2</sub>O by boiling it. 1.

2. Degrees of E. coli safety For imbibing: 0 E. coli/100ml, for swimming/paddling: 5000 E. coli /100ml. Water safety is really of import along the Msunduzi River as there are lasting occupants populating along it.

Locals are severely affected by sewage-borne diseases such as cholera, diarrhea and hepatitis as a consequence from hapless H<sub>2</sub>O quality. At times the Msunduzi River is up to 3000 times higher than what is considered acceptable for in a infected armored combat vehicle system. The HIV has already infected many of the locals on the Msunduzi River and these hapless H<sub>2</sub>O quality consequences have lay waste toing effects on these people.

1 Table 1 to demo current imbibing H<sub>2</sub>O criterions. ( Prescott Harley Klein, 2005 )

## Agent

### Allowable Maximum Contaminant Level Goal

Coliforms 0 ( no faecal coliforms either ) Cryptosporidium 0 Giardia

lamblia 0 Legionella 0 Viruss ( enteric ) 0 Table 2 to demo figure of E. coli and

the safety of these conditions: ( uMngeni Conservation Trust. ( 2009 ) E. coli

count / 100 milliliter Canoe usage category 0 - 2000 Excellent 2001 - 5

000 Good 5 001 - 10 000 Acceptable 10 001 - 25 000 Tolerable 25 001 - 50

000 Poor 50 000 - 150 000 Unacceptable & A ; gt ; 150 000 Dangerous 2.

The Effects the seasons have on E. coli degrees From the two graphs shown in Figure 1 and 2, there is a general tendency that both the mean precipitation and the degrees of E. coli nowadays in the river bead during the winter months in Pietermaritzburg. Although the graph in Figure 2 is really ragged with inconsistent extremums, there is a definite downward tendency from May to September, the low rainfall months. As shortly at the rainfall increases once more in the summer months, the E.

coli one time once more get down to top out. This shows that the degrees of E. coli and rainfall are related to one another. 2Graph 1 to demo mean rainfall in Pietermaritzburg ( South African Weather service. ( 2003 ) . )Graph 2 to demo E.

coli degrees in Slangspruit River in 2009 ( Terry, S. ( 2010, May 28 ) Personal Communication )32. 1.

E. coli and Precipitation link E. coli occur of course in the bowels of worlds ; here it has the optimal chance for growing as it is warm, dark and hydrated. When the E. coli passes out of the organic structure in the fecal matters, it is no longer in its natural environment. There are beings such as algae and zooplankton in the H<sub>2</sub>O that provender on the E.

coli and this bacteria is besides extremely sensitive to the extremist violet beams of the Sun. For this ground E. coli does non last for long. In the less showery months of the twelvemonth, there is less H<sub>2</sub>O flow in the Msunduzi River and E. coli settle to the underside of the river, go forthing the H<sub>2</sub>O comparatively safe. When there is heavy rainfall, more fecal affair seeps into

the H<sub>2</sub>O, sewerage systems are put under force per unit area and sewerage pipes end up bursting or leaking, increasing the E. coli ooze into the river.

As the H<sub>2</sub>O is besides under metal of force per unit area from all the rain, the E. coli do non acquire a opportunity to settle down in the river beds. 3.

Health effects of E. coli on the local dwellers on the Msunduzi

RiverContamination of H<sub>2</sub>O by homo and animate being fecal matters is still the greatest danger because of the E. coli.

E. coli itself is non the greatest menace as it is simply an index being.

Indicator beings are used to mensurate how much fecal affair in present.

When indexs such as E. coli are non found in the H<sub>2</sub>O sample, it can be assumed that the H<sub>2</sub>O is drinkable. Drinkable H<sub>2</sub>O is safe and suited for imbibing.

E. coli serves an of import intent in the procedure of digestion and they are portion of the intestine that is responsible for the interrupting down of some sugars and proteins. However there are certain strains of E.

coli that can be harmful, bring forthing powerful toxins that can do both bloody and non-bloody diarrhea and abdominal spasms. The toxins attach themselves to epithelial cells which line the enteric walls, which finally damage the blood cells. In older people these toxins can do kidney failure as a consequence of their ruddy blood cells being destroyed. Peoples who have AIDS, or other long term unwellnesss, are at a greater hazard of undertaking infection from this H<sub>2</sub>O, and the wellness issues related would be more serious.

Normally the organic structure & A ; acirc ; ^™s natural defences overwhelm the bacterium. However in immature kids the defence system has non yet to the full developed while in older grownups this defence system may be compromised. 3. 1. Symptoms of water-borne infections3. 1. 1.

E. coliIf a individual is infected by E. coli, the symptoms do non look directly off. They normally appear after seven yearss, when abdominal spasms all of a sudden occur.

A few hours subsequently diarrhoea causes one & A ; acirc ; ^™s organic structure to lose a batch of H<sub>2</sub>O and electrolytes which make one feel tired and ill. For the first twenty-four hours the diarrhoea will be watery, so it changes into a bright ruddy bloody diarrhea. This leaves your bowels full of sores and this could last up to 5 yearss.

Some people may hold little temperature and sometimes the desiccation could do sickness and emesis. Kidney jobs could get down as small at 2 to 14 yearss after the start of the diarrhoea and these jobs could be the cause of kidney failure. This is sometimes a long term disablement for kids and grownups, perchance ensuing in decease. HUS ( heamolytic azotemic syndrome ) occurs when the blood vass in the kidney are damaged, and this is a serious unwellness can ensue in many complications including sightlessness, shots, palsy and seizures. HUS is the most common ground of ague kidney failure in immature kids, less than the age of 3. For these grounds, people must acquire medical aid when they contract this infection. This is a job for the locals who live along the Msunduzi River as they do non

ever hold entree to clinics or physicians and their wellness merely continues deteriorating. 43.

1. 2. DysenteryDysentery is a disease of the big bowels that is caused by a Shigella bacteria. Dysentery is passed on by contact with septic worlds and besides by contaminated fecal matters.

The liner of the bowels gets inflamed and this causes fever, abdominal hurting, sickness, purging and a watery diarrhoea that sometimes includes blood and mucose. The diarrhea causes people to lose salts and other of import fluids in the organic structure. When infected with Dysentery, changeless fluid consumption is indispensable to replace the fluids lost.

Peoples should non be in contact with others until they are symptom free for at least 48 hours. 3. 1. 3.

CholeraCholera is an unwellness of the bowels caused by the Vibrio cholera bacteria. The infection can hold minimum symptoms nevertheless if left untreated the symptoms could be terrible. The symptoms include watery diarrhoea and emesis. The rapid loss of fluids in the organic structure can do desiccation and daze. Cholera is passed on by imbibing or feeding contaminated nutrient and H<sub>2</sub>O. The intervention of Cholera is to replace the fluid lost by the diarrhoea.

3. 1. 4. Typhoid FeverTyphoid febrility is contracted when people drink or eat nutrient contaminated by the Salmonella typhi bacteria. The symptoms of Typhoid include the sudden loss of appetency, febrility, irregularity, sickness and terrible concerns. It can sometimes do a gruff cough and diarrhoea.



Typhoid febrility is unsafe as the symptoms of the febrility can halt, although the individual can still be a bearer of the bacteria, infecting other people.

4. Authority & A ; acirc ; ^™s Role to better state of affairsThe H2O pollution, specifically fecal affair, needs to be dealt with really earnestly, get downing with the municipality. Ventilated Pit Latrines need to be installed in the rural countries along the Msunduzi River specifically along Slangspruit River and in the Edendale country where there are rural communities. The Msunduzi Municipality needs to use more skilled staff to proctor and perchance replace and mend sewage systems along the river. Properties along the river demand to be inspected for storm and waste H2O direction. Some industries illicitly disperse of their industrial wastes into the river and all these sites need to be inspected every bit good.

There is over 1450 kilometres of sewerage grapevine and there are merely four cloaca inspectors. Some old ages back there were eight. More staff will better the job with broken grapevines leting fecal waste to leak into the river as there will be more frequent medical examination on the grapevines and when a pipe does burst, the fix could be much faster and dependable.

## **Decision**

The E. coli job in the Msunduzi River is an issue that merely seems to look when it is related to paddling or the wellness issues of the Msunduzi canoe endurance contest. However these people are merely affected when they use the river for recreational usage. There are people who live along the Msunduzi River in colonies who rely on the H2O on a day-to-day footing. This H2O is non drinkable and it can be really unsafe if they ingest it, but it is

besides the aged who are forced to do usage of this H<sub>2</sub>O every bit good as the little kids.

The local dwellers of the Msunduzi River are at a greater hazard of unwellness during the showery summer seasons where sewerage pipes are under force per unit area or when they overflow into the river. It is non the E. coli itself that the people should fear ; it is all the other possible infective fecal bacteriums in the H<sub>2</sub>O. E.

coli degrees addition in the summer seasons as this is when the Msunduzi River receives most of its one-year rainfall. This is the clip that most of the water-borne infections appear as the addition of E. coli indicates an addition of other infective bacteriums.

**52050 words**