

Hotel Owners' Assessment to the Blue Heron Pond Town Council Regarding the Negative Effects of the Relocation of the Black & Decker Plant to the Community



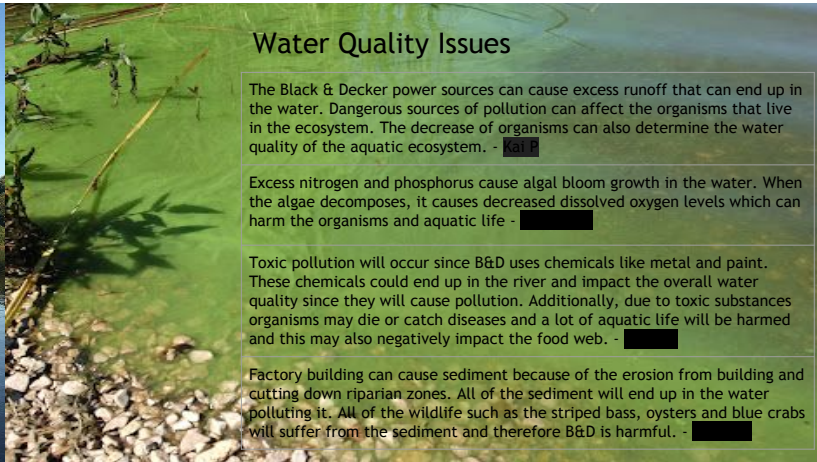
Water Quality Issues

The Black & Decker power sources can cause excess runoff that can end up in the water. Dangerous sources of pollution can affect the organisms that live in the ecosystem. The decrease of organisms can also determine the water quality of the aquatic ecosystem. - K&I

Excess nitrogen and phosphorus cause algal bloom growth in the water. When the algae decomposes, it causes decreased dissolved oxygen levels which can harm the organisms and aquatic life - [REDACTED]

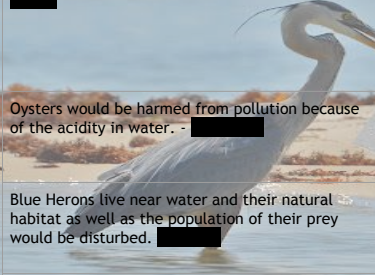
Toxic pollution will occur since B&D uses chemicals like metal and paint. These chemicals could end up in the river and impact the overall water quality since they will cause pollution. Additionally, due to toxic substances organisms may die or catch diseases and a lot of aquatic life will be harmed and this may also negatively impact the food web. - [REDACTED]

Factory building can cause sediment because of the erosion from building and cutting down riparian zones. All of the sediment will end up in the water polluting it. All of the wildlife such as the striped bass, oysters and blue crabs will suffer from the sediment and therefore B&D is harmful. - [REDACTED]



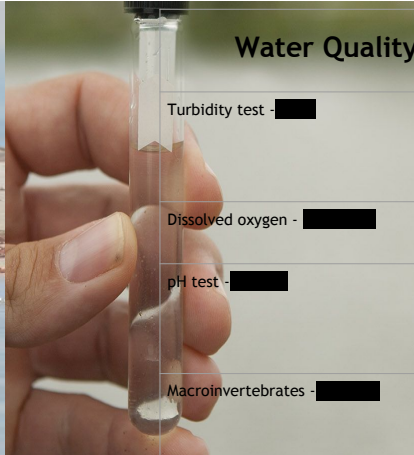
Effect of Pollution on Organisms and Food Web in Area

<p>Fish would die from this pollution and loss of prey. [REDACTED]</p>	<p>The Chester river can include a fish species called the "White Perch". If the perch population dies, the fish predators (sharks, water birds and snakes) will decrease in population and the food web will crumble and will be unstable. If the perch die, others will perish with them. - [REDACTED]</p>
<p>Oysters would be harmed from pollution because of the acidity in water. - [REDACTED]</p>	<p>Excess carbon dioxide from the B&D plant would make the water more acidic. Oysters cannot grow their shells in acidic water. Fewer oysters make blue herons rely on other food.</p>
<p>Blue Herons live near water and their natural habitat as well as the population of their prey would be disturbed. [REDACTED]</p>	<p>Due to pollution in the water, the population of fish and other aquatic organisms will decrease. In turn, this will cause the blue heron population to decrease because they will have fewer amounts of food and prey.</p>
<p>Blue Crabs would be harmed and or may die because of the pollution. - [REDACTED]</p>	<p>Due to the pollution in the water, the aquatic plants will increase way more than normal standards. Then, the predators such as striped bass, red drum, catfish and some sharks will go hungry. This is because they depend on the blue crabs for food.</p>



Water Quality Tests

<p>Turbidity test - [REDACTED]</p>	<p>The pollution can trigger or increase the sediment effect in water making it more dirty and not sanitary. Also the turbidity of the waters can lessen the organisms in the area, indicating what the water quality is.</p>
<p>Dissolved oxygen - [REDACTED]</p>	<p>Dissolved oxygen levels tells what wildlife can live in the water and the potential for algae bloom growth.</p>
<p>pH test - [REDACTED]</p>	<p>pH is a measure of how acidic a substance is and doing this test will tell you if the water is at a healthy level of acidity for organisms to live in. Many organisms can only live in water with a certain pH level which is why this test is important.</p>
<p>Macroinvertebrates - [REDACTED]</p>	<p>Macroinvertebrates can give you a sign on if the water has too much pollution. Basically if there are no macroinvertebrates that are sensitive to pollution the water is unsafe.</p>



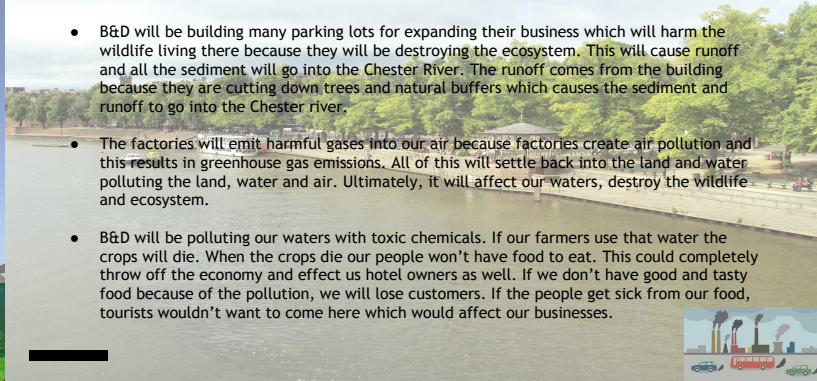
Sources Of Pollution Caused By Black and Decker Plant

- Some appliances that use gas can pollute the environment with the gas and oil in the water. Also wood and coal burning appliances can cause dangerous fumes that can make organisms including humans ill. Oils and fumes can affect the environment around us. Everyday appliances can cause a great harm to the environment and other organisms.
- Tools require metals and metal chemicals that can pollute the area as fumes and could dissolve into the water. Appliances can have lead, arsenic, mercury and alkali metals. Mercury is a dangerous and toxic chemical that can kill people at extreme cases. Mercury can affect the liver, kidneys, the immune system and many other bodily factors. Lead is also a dangerous chemical that can cause anemia and kidney and brain damage.
- Different metals and electrical charges from the factory can kill many aquatic life. Water is a conductor of electricity that could shock it's surroundings and could kill them. Electrical discharges can kill humans as well. This could affect the water quality and aquatic life in the water.



Other Possible Ecological Problems That Could Result

- B&D will be building many parking lots for expanding their business which will harm the wildlife living there because they will be destroying the ecosystem. This will cause runoff and all the sediment will go into the Chester River. The runoff comes from the building because they are cutting down trees and natural buffers which causes the sediment and runoff to go into the Chester river.
- The factories will emit harmful gases into our air because factories create air pollution and this results in greenhouse gas emissions. All of this will settle back into the land and water polluting the land, water and air. Ultimately, it will affect our waters, destroy the wildlife and ecosystem.
- B&D will be polluting our waters with toxic chemicals. If our farmers use that water the crops will die. When the crops die our people won't have food to eat. This could completely throw off the economy and effect us hotel owners as well. If we don't have good and tasty food because of the pollution, we will lose customers. If the people get sick from our food, tourists wouldn't want to come here which would affect our businesses.



Ideas to Reduce Harmful Effects From the Factory



Switch to Clean Energy Sources

Instead of using coal or gas, Black & Decker could use renewable energy sources such as solar, wind, and/or water power to generate electricity, which don't contribute anything to air pollution.

Use Technology to Destroy Pollutants at the Source

Use technology to destroy air pollutants at the source, such as catalytic oxidizers, which use intense temperatures to render air pollutants down into their constituent compounds, which may then be harmlessly released.

Use Non-Toxic Materials to Manufacture Goods

Use non-toxic alternatives in the grinding and milling process during manufacturing to avoid heavy metals in the water and air, where they impact the health of humans and wildlife by making the air more acidic which leads to acid rain.

<https://www.altenergymag.com/article/2020/04/readers-choice-2020-how-to-prevent-industrial-air-pollution-in-manufacturing/43006>

General Problems That Would Occur if Black and Decker Moved Into Town

Infrastructure

The small, rural town which is mainly used for agricultural purposes, will change into an urban town that is used for industrial, residential, and commercial purposes. The new urban environment as well as new roads and transportation systems can significantly increase pollution.

Economy

Some of the main sources of economy for the town are farming, fishing, and crabbing. With the relocation of B&D, there will be a new influx of factory workers and people may lose their jobs. Also, due to pollution, the population of organisms such as crabs and fish may decrease which means these jobs could no longer even be possible.

Culture

From the viewpoint of hotel owners near the waterfront, it is clear that tourists visit and stay at the town for the recreational activities and these will no longer exist if B&D comes and pollutes the river. Additionally, the waterfront is what people love most about this town, and that may be compromised if B&D moves in.

Conclusion



All things considered, as Hotel Owners in the Blue Heron Pond Town, our final determination is that we are firmly against the relocation of Black & Decker to our community. The Black & Decker plant can cause a lot of pollution and death in the Chester River which will negatively affect the ecosystem. Many dangerous chemicals and pollutants may harm organisms as well as the surrounding life due to the B&D plant. Furthermore, the water quality will get much worse after the B&D plant is added and this can be proven through procedures such as pH tests, turbidity tests, dissolved oxygen tests, and finding macroinvertebrates. These will all indicate the livability of the river and show its quality. Additionally, the unique, rural qualities of our small town will no longer exist if B&D becomes an addition. If the beautiful waterscape is polluted, there will also be fewer visitors and tourists. Although it may start at the waterfront area, as Black and Decker expands, the entire town and ecosystem will ultimately be poorly affected.



Thank you for your attention!

Student Assignment

Slide 1 - Title Slide

Slide 5 - [Redacted]

Slide 2 - Group

Slide 6 - [Redacted]

Slide 3 - Group

Slide 7 - [Redacted]

Slide 4 - Group

Slide 8 - [Redacted]

Slide 9 - Group

Rubric

Blue Heron Pond Town Council Presentation					
Criteria	Ratings				Pts
	1 pts Full Marks	7 pts Near Proficient	5 pts Basic	0 pts No Marks	
Title of Presentation					1 pts
Your Assigned Side in Presentation <small>You were assigned one side to complete for this presentation. It could be Sources of Pollution, Ecological Problems, How to Reduce Pollution Effects or Other General Problems.</small>	10 pts Advanced 3 out of 3 details included	8 pts Proficient 2 out of 3 details included	7 pts Near Proficient 1 out of 3 details included	5 pts Basic Attempt was made, but no defensible details.	10 pts
Group Slide - Water Quality Issues	10 pts Advanced Example and well explained details	8 pts Proficient Example and partial details	7 pts Near Proficient Example and little detail	5 pts Basic Attempt made but no defensible example and details	10 pts
Group Slide - Effect of Pollution on Organisms	10 pts Advanced Example and well explained details	8 pts Proficient Example and partial details	7 pts Near Proficient Example and little detail	5 pts Basic Attempt made but no defensible example and details	10 pts
Group Slide - Water Quality Testing Recommendations	10 pts Advanced Example and well explained details	8 pts Proficient Example and partial details	7 pts Near Proficient Example and little detail	5 pts Basic Attempt made, but no defensible example or details.	10 pts
Presentation	5 pts Advanced No errors	4 pts Proficient 1-3 errors	3 pts Near Proficient 4-6 errors	2.5 pts Basic 7 or more errors	5 pts
Total Points: 46					

Your Group Focus is Crabbers/Fishermen:

Crabbers on the Bay catch Maryland Blue Crabs and bring them to a crab picking house for processing in Blue Heron Pond Town. The meat is picked from the crabs and is packed in cans that are sold in groceries or to restaurants throughout the state and region. Fishermen sell their fish to a wholesaler (middle man) in the same building, who sells to groceries and restaurants, also. The building is located on grassy land along the river and has a medium-sized gravel parking lot and a dock for crabbers/fishermen. These watermen rely on a healthy river to provide an abundant, edible seafood population. Polluted river water could result in sick watermen and a poor, unhealthy catch.

Your Group Focus is Black and Decker Executives:

Black and Decker executives see the move to Blue Heron Pond Town as a profitable opportunity for their company. Low business taxes, an ample supply of possible employees, the proximity of the river to the plant site for water usage and product transportation to markets make Blue Heron Pond Town an ideal location for their new headquarters. Massive amounts of water is needed in the production of the metal parts for their products. The water is used for cooling metal casts. They use high grade paints and chemicals as well as large furnaces (used for metal moulding) that could possibly discharge large amounts of pollution, both into the air and water. Black and Decker has been a leader in their industry on proper pollution remediation. The physical building will be located on the banks of the Chester River and will cover several acres including paved parking lots.

Presentation Expectations:

Titles: Size 25

Text - Size 14

Font Style: Merriweather, Comic Sans MS, Playfair Display, or Trebuchet MS

Bullets: acceptable

Graphics: 1 to 2 per slide. All graphics must pertain to the topic.

Grammar Expectations:

- Complete sentences
- Proper spelling
- Proper capitalization
- Proper grammar

Themes: - You should use a theme or background photos, no more than 2-3 colors in a theme. If you are unsure, check with your teacher.

Slides: - You may add slides as needed. Do not "crowd" your slides.

Your Group Focus is Farmers:

Farms on the Eastern Shore of Maryland often raise 1000's of chickens which are typically contained in large poultry barns. Along with the chickens, the farmers raise a few cattle and pigs. They also grow corn and other crops (like soybeans.) They remove water from the Chester River to irrigate their crops. They also use fertilizers and pesticides on crops and animal manure, but observe proper management practices. Farmers worry that the river water could contaminate their crops and make their livestock sick if Black and Decker moves into their town.

Your Group Focus is Hotel/Bed and Breakfast Owners:

The town now has one hotel and one bed and breakfast (a room plus breakfast). Both are located near the waterfront. Currently, the majority of customers are tourists who visit area parks, participate in water-based recreational activities or stop overnight on their way up the East Coast. People enjoy the quiet charm of Blue Heron Pond Town and the surrounding waterfront. While these businesses see a benefit in increased profits from more customers, they worry about the effect of the Black and Decker Plant on the waterfront area and that it may turn away visitors. Business owners are also worried that an influx of new residents might change the "feel" of the town to more of an urban setting instead of the "small town" feel of the community.

Resources

[Unit 1 Terms and Information Guide](#)

[Freshwater Stream Health Video](#)

[Water Quality Testing Video](#)

[Water Quality Solutions](#)

[Water Quality Indicators](#)

[Land Changes \(Book\)](#)

[Effects on Land \(Book\)](#)

[Pollution Sources \(Book\)](#)

[Helping urban areas](#)

The Amoeba Sisters Videos

- [Ecological Relationships](#)
- [Food Webs and Energy Pyramids: Bedrocks of Biodiversity](#)

Read through other stakeholder descriptions (slides 13 - 16) to help pinpoint issues.