

How does mercury affect past and present societies?

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Introduction:

We have found that mercury has had a major effect on past societies, but also on present society. Our questions are: "How does mercury affect past and present societies? How did it impact the environment? Why is it so important?"

We are studying this topic to answer those questions. While researching this topic, we learned that mercury had affected hatters, known as "mad hatters" in the 1800's. Mercury was used in a process that allowed the hatters to turn fur into felt. The problem was that these hatters didn't know the harmful effects, and also worked in poorly ventilated workshops. "Mad hatters" became well-known when Lewis Carroll created the film "Alice in Wonderland," making a "mad hatter" a main character.

In today's society, we learned that many common household items contain mercury. Many of the items would not always be expected to be toxic, and they are.

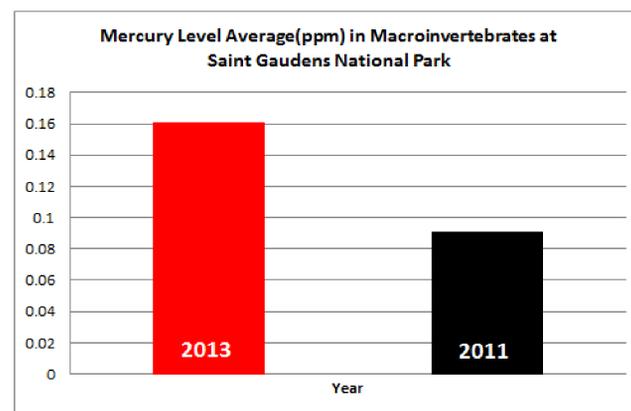
Our hypothesis is that in the past mercury was distributed the same way as today but at a lesser scale. In the 1800's hat makers used mercury to remove fur from animal skin. This was not good for the environment or the workers. The mercury was not disposed of correctly and the workers became very sick and most went crazy do to mercury poisoning. The distribution of mercury has increased over the years due to new technologies, improper disposal, and items such as batteries that contain mercury in them. (below shows a picture of St. Gaudens)



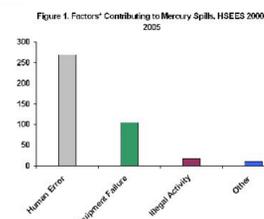
Methods and Materials:

- The materials that we used on the Saint Gaudens National Park field trip were D nets, gloves, bags, a macroinvertebrate ID guide, thermometers, a cleaning dish, wading boots, water sampling containers, a ruler, and a cooler.
- The method we used was "clean hands/dirty hands". "Clean hands" had gloves on while "dirty hands" dealt with the macroinvertebrates and labeling.
- For our samples we put on the wading boots and went in the river with the D-nets. It was easier to find the larvae if you kicked the rocks up. When we got one we would bring it up to the labeling station. Once it was there the samples would be measured and identified. Then they would be put in a plastic bag and stored in the cooler. The samples were then sent to the Chen lab at Dartmouth.

Data:



The Macroinvertebrate samples from Saint Gaudens (a local National Park) connect to our question by showing there are mercury level present in the stream that could be eaten by small fish which move up the food chain. Fish such as tuna that have a higher fat level can contain mercury. The tuna you may buy in the store contains a small amount of mercury. Any products with fish oil can contain small amounts of mercury. So if some beauty products have fish oil in them there is a good chance there is tiny amounts of mercury.

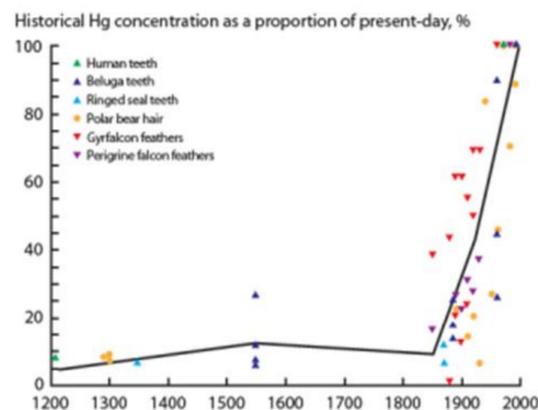
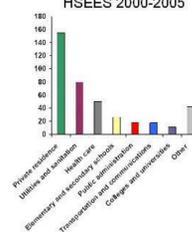


*Spills may have more than one contributing factor

Figure 1 shows the contributing factors for the spills while figure 3 shows some of the Facilities that the mercury was found or spilled at.. The Y axis represents the amount that was effected.

These graphs represent the spills and facilities which connect to our question because it show where a lot has happened and how, the biggest cause in 2005 was human error. The place where most of the spills took place was in a private resident. There are examples to the spill such as a broken mercury thermometer, chemical weapons for the illegal activity, a broken compact fluorescent light bulb, and more.

Figure 3 Facilities with Mercury Spills HSEES 2000-2005



Conclusion:

Our hypothesis to our question was that in the past mercury was distributed the same way as today but at a lesser scale. In the 1800's hat makers used mercury to remove fur from animal skin. This was not good for the environment or the workers. The mercury was not disposed of correctly and the workers became very sick and most went crazy do to mercury poisoning. The distribution of mercury has increased over the years due to new technologies, improper disposal, and items such as batteries that contain mercury in them.

Our data shows the comparison of mercury levels through bugs in just a few years. It demonstrates the effects mercury has on wildlife and the change of the effects over the years. Our data also shows the concentration of mercury through a span of 800 years. You can easily see that it has increased massively over the years.

In conclusion our hypothesis was supported. Also the distribution of mercury has increased massively over the years. I think it is important to take notice of this because it can be harmful to wildlife and to ourselves. We should be careful and try to reduce the distribution of mercury.

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