Ray Skelton Writing Contest 2018 Essay Winner Juniper Kelly-Swing

River Quest Essay
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While at River Quest, I learned many things and got to visit many places. I watched a model of a hydroelectric dam work and got to ride the Vista Fleet. Most of all, I was impressed by everything. I have been taught so much and loved going to River Quest. I live ½ a mile away from Lake Superior and deeply love it; therefore, the information was very relevant to me. I learned so much and found so much fascinating that I wanted to share my experiences and observations.

At the WLSSD (Western Lake Superior Sanitary District), huge pipes bring the water down to them. From there, they clear out the garbage and then add bacteria to the water. It might sound crazy, but the bacteria eats all the bad nutrients in the water and then clumps and falls to the bottom of the huge tanks. The bacteria then, when cooked for a month, can be used as fertilizer for farmers. I learned that to help WLSSD, we can use less wastewater, as already ½ of the water that they get is our waste water. We can also throw things away, instead of flushing them.

At the City of Duluth Utility Operations, we learned the difference between a storm sewer and a sanitary sewer. A storm sewer system is called an open collection system, meaning that it is not a cleaned sewer system. Whatever is poured down the storm drain or catch basin goes straight to one of the 44 streams that feed into the lake, the Lester River, the St. Louis River, or Lake Superior. A sanitary sewer system is a closed system. It carries our wastewater straight to WLSSD where it is treated. We can help by not pouring our medicines and oils and other liquids we find down the storm drain, instead bringing them to places that can deal with them properly.

At the Minnesota Power Water Power, we learned that they build their dams in rushing water. That rushing water hits the huge turbines that then turn and make energy that goes into a waiting generator. The way that they keep the St. Louis flowing is that they have the Rice Lake Reservoir that holds water and is released into the river when needed. The dam was meant to power the entire of Duluth, but it didn't work, with all the energy that we need now. I think that it's really cool that no one knows that the reservoir is there. They just think that it's just a lake, and even have cabins on its shore.

At the Sappi stop, we learned that paper isn't the only thing that they make. They also make pulp. Both pulp and paper are made of water, wood, and chemicals. Sappi uses 2/3 Lake Superior water and 1/3 St. Louis River water because the river is dirtier than Lake Superior. They use approximately 16 million gallons per day. They mix the water and wood and chemicals, bleach it, do some other processes, and then voila! You have paper. To clean the water, they mix it and chemicals, mix it, add more chemicals, and then send it to WLSSD. To get rid of the sludge and bark, they burn it and use the steam for power and the ash for farm fertilizer. It's really cool that they have their own way of treating it before they send it on to WLSSD, making their job with the bacteria easier.

At the U.S. Coast Guard Oil Spill Response, I found out that leaking engines are not good. To solve that problem, they use absorbent pads to soak up oil and repel water. Booms are also used in the water if there is an oil spill, as they contain it, while waiting for skimmers. Booms are also used to clear oil on the bottom of the lake. People used to use dish soap to get rid

of oil, but that makes it worse, as it dissolves it. We can help by using the absorbent pads instead of just letting the oil leak into the water.

At the Twin Ports Rip Currents station, we learned that a riptide can be from 10-20 ft. wide and up to 100 ft. long. We also learned that to get out of a riptide, we can either swim parallel to shore until out of it, or float or tread water, wait, and the riptide will carry us out and we'll be able to get back to shore. To see if there are riptides, look at the beach. If there are no waves, no foam, clear water, and the rest of the beach looks differently, then there's probably a riptide. We could also look at the flags. Green is no risk, yellow is some risk, and red is high risk. A third option is to check the beach status at parkpointbeach.com. I think it's important to know how to save yourself from a riptide, and that, now, because of this, 100's of kids know what to do. Many of us swim in the lake in summer, so it's important to know the risks and stay safe.

At the hypothermia learning stop, we learned that some of the signs of hypothermia are uncontrolled shivering and blue lips and fingers because our bodies can't produce enough heat. The average body temperature is 98.6°F, but the average Lake Superior temperature is 40°F, so we can lose heat fast. If you suddenly plunge into cold water, don't gasp or water gets in your mouth and might drown you. Instead, get into the HELP position (Heat Escape Lessening Position), which is with your feet pulled up to your chest and your hands clasped around them. If people fall into cold water and are hypothermic, get their wet things off and give them some dry things. Then give them a gigantic bear hug because they need to have an average body temperature again. It was really cool how we got to feel what hypothermia feels like. It hurts!

At the U.S. Environmental Protection Agency, we found out that a watershed is the land around a water body that holds water. A point source is a place that can be source as the cause of some pollution. We can help by using less pesticides and salt, maybe sand instead. We can pick up our pet's poop and wash our cars on the lawn instead of the street, and we can blow our grass clippings back onto our yards. These were useful tips that I can do at home!

At the Lake Superior National Estuarine Research Reserve. we learned that an estuary is a place where two kinds of water meet and mix. The St. Louis is the biggest estuary on the great lakes, with a seiche that mixes the water together. When we pour things down storm drains, that pollutes the St. Louis Estuary as well. We can stop that; we can stop pollution. We need the water the estuary provides us, and we can't afford to lose it, so we must protect it.

At the Minnesota Sea Grant Program, we learned that trout like cold, clean, pristine, flowing water. Invasive species like goldfish, who are bottom feeders, eat detrites; decaying plant and animal material. If you don't want to keep your fish, you can either bring it to school, an aquarium, of the zoo. If worst comes to worst, you can leave it in a freezer overnight, but try the other 3 things first. I believe that if you are going to buy a pet fish, first think, "Do I have the room for it. Do I have the time for it? Do I have the money for it? Am I prepared to take care of it?" Then you can decide whether owning the fish is a good idea. Don't dump your fish into lakes and rivers!

At the Duluth Sail and Power Squadron group, we learned that PFDs (Personal Floatation Devices) are less dense than water, explaining their ability to float. They have buoyancy; the ability to float in water. You should always where a life jacket during water activities because 10 people drown a day in the U.S., and 80% of them weren't wearing life jackets. So some advice for all: WEAR YOUR LIFE JACKET! I always do!

On the observation deck, I saw the Aerial Lift Bridge, Canal Park, the docks, Park Point, the Aquarium, and the DECC. I also saw the William A. Irvin, the Vista Queen, and all the docked boats. It was really cool to use binoculars, and I saw some details that I've never noticed before.

That was all the information that I thought was worth knowing and worth remembering. I hope that you enjoyed hearing what I learned and thought about the experience. I had a great day and know so much more about our lakes and rivers and how to protect them!

The St. Louis River Quest mission is to help young people become more environmentally conscious, to increase their awareness of industrial and recreational impacts on the environment and realize that thoughtful partnerships between industry, government and the public can result in safe use of our natural resources. @stlouisriverquest