Conservation Krewe

NEWSLETTER
Volume #4

Welcome

This edition of the Conservation Krewe Newsletter is all about ways we are *Going Green* right here at the Aquarium!

Raising Awareness

How Shreveport Aquarium summer camps strive to make an impact

Power Saving Pumps

Energy efficency is key to the Shreveport Aquarium life support systems

Water Wise

Are we flushing our clean water supply right down the drain?

Next Stop

Education Station

Tanner Brunson -Educaion Manager

The main goal of Shreveport Aquarium's education department is to raise the public's awareness of the environmentally unsustainable practices of mankind and how to amend or stop these practices. Many of the problems facing the environment are not due to mankind's stubbornness, but to ignorance. The people are unaware of the negative impact that their daily habits and usage of single use plastic convenience items have on multiple ecosystems. Our education department seeks to enlighten those individuals in the hopes that they will make the necessary changes today that will touch our tomorrow.

The education process begins with our staff. Before they ever teach the general public, our educators must first go through an extensive training process. This involves two weeks of onsite and at-home research. Our educators are then tested to see if they are ready to teach to the public. Teaching to the public is about so much more than making sure all the rules are followed at our touch pools. For the most part, each of our exhibits represents a different ecosystem, which all face their own unique environmental threats. We want to be absolutely sure that our educators are knowledgeable in their delivery when it comes to these sensitive matters.

Next in the process is our educational programing. The Shreveport Aquarium's education department offers a wide variety of programming; this includes field-trips, boat trips, dissections, bug hunts, and much more. All these programs are created with the intention of impacting environmental awareness amongst the public. For example: In the bug hunt program, we obtain a small sample of water and sediment from a local water source. Those participating in the activities sift through the sediment with instruments and collect specimens that they find. Based on the tolerance level of the specimens that they find (crawfish, annelids, beetles, etc.), they can estimate the level of pollution in the water source. From here, they can make a "game plan" as to how they could aid that water source! All of this information is not disseminated with the intention to scorn or scold anyone! Mistakes made in ignorance are not at the fault of the one making them, but at the people who did not educate the individual. We seek to create moments that touch individuals and inspire them to create a better and more sustainable tomorrow.

Destiny Garcia – Programs Manager

The core of any summer camp in America is to give kids a safe space to spend summer days making fun memories. The Shreveport Aquarium Education Team is designing a summer camp that will make those summer memories matter. Imagine the change that could be created by a generation of activists that really understand and embrace the concepts of environmentalism from a young age.

The Camp Aqua Campers' mission for Summer 2019, is to petition fast food resturants to eliminate their Styrofoam containers. The chemical styrene in styrofoam is a known animal carcinogen, and human neuro toxin. Styrene leeches out of styrofoam when exposed to heat (have you ever had a hot coffee in a styrofoam cup?), acids (do you put lemon in your tea, or drink citrus flavored sodas), and fats/oils (Hellooooo? Fried Chicken!) It's no good for the environment, it's not good for animals, and it's not good for people. McDonald's made a commitment to eliminate styrofoam food packaging in back in 1990, and switched instead to cardboard, which is ultra-biodegradable. Both Chick-Fil-A and What-A-Burger serve chicken strips in laminated paper containers. There are successful alternatives being used in the industry today, and we hope other fast food resturants will join the cause too!

Camp Aqua Campers will be working on this goal in multiple ways. One of their daily journal prompts is to write a letter to C.E.O's of companies still using sytrofoam, asking them to consider alternative packaging and presenting them with the facts on Polystyrene (styrofoam.) The campers will also be working on an art project called "The Cost of Styrofoam." In this project the campers will re-use styrofoam by embossing and painting it with pictures of all the beautiful animals and natural settings that pay the price for styrofoam. With perseverance, knowledge, and luck, the Shreveport Aquarium and the Camp Aqua Campers will make Louisiana a greener place.

Pump up the efficiency

Nathan Carpenter – Curator of Live Exhibits

Many of you have, by now, heard someone in the Husbandry department refer to these mysterious pieces of equipment called VFD pumps. As in "All of our pumps on site are VFD." Odds are you even heard it from me. Well, have you ever wondered what that means? Or more importantly, why it matters? Because it does matter.

Let me explain. When you plug in a standard pump the first thing that happens is a massive power spike to get the impellor turning. Once things have fired up it settles into a steady power consumption. The important point being that it is running at its maximum capability all the time. If you want to slow the flow rate of the water coming out of the pump you must use a valve to slow it down. However, no matter how much you close the valve the pump is consuming the same amount of power.

Now Contrast this with a VFD pump. VFD stands for Variable Frequency Drive. In simple terms this is a device that regulates the amount of power applied to a piece of equipment. In this case an aquarium pump. The more power (volts) you apply the higher the frequency (hertz) goes. The higher the frequency the faster the pump impellor turns; and the faster the impellor turns the more water the pump moves. Of course, the reverse is also true. Turn the power down and the pump moves less water.

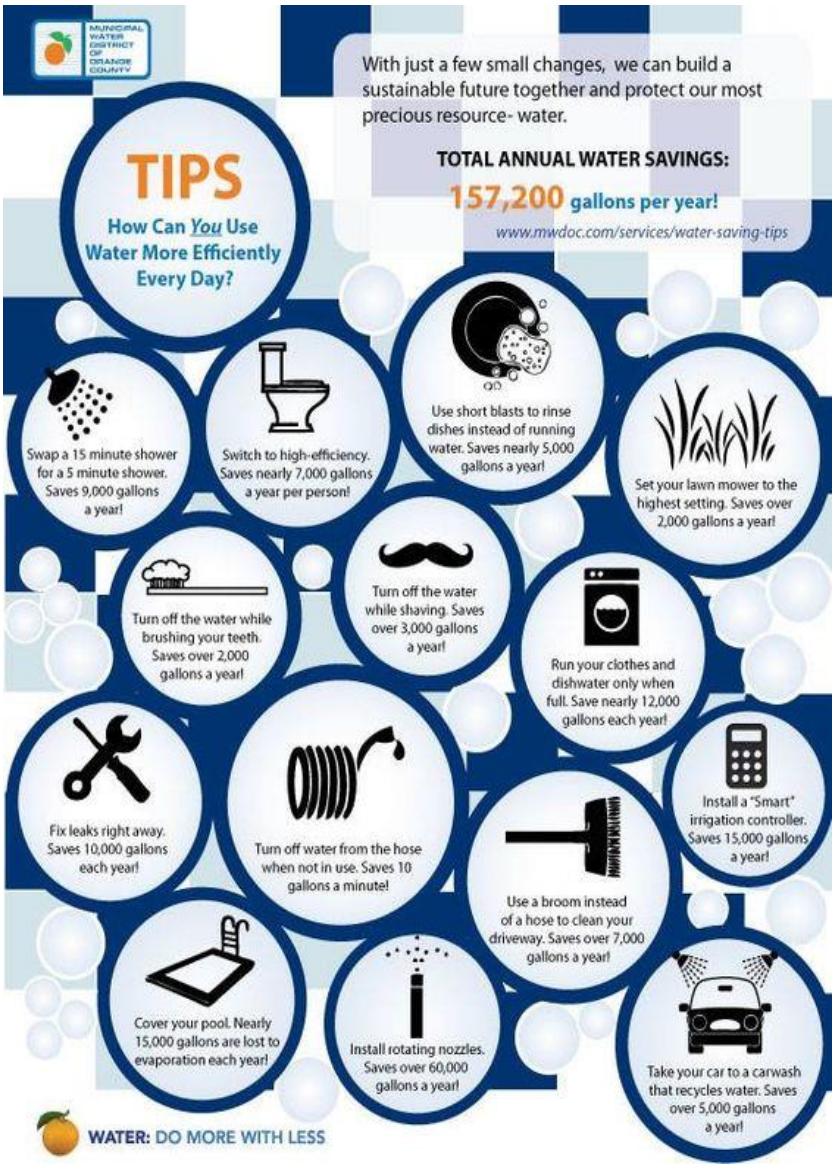
The VFD also eliminates the massive power spike at the beginning of pump's startup sequence. Instead it ramps up a little at a time until you are running at the desired frequency. This all means that by employing VFD pumps you potentially cut your energy consumption by as much as 50% over the course of a day. When you consider that we have twenty-six pumps running twenty-four hours a day three hundred and sixty-five days a year this all adds up to a significant cut in the amount of power being consumed. But wait, There's more!

Remember I mentioned that with a standard pump that flow control is achieved by using a valve to restrict water movement? Well, it turns out that controlling water flow in this manner only adds to your power consumption problems. You see, as the impellor of any pump turns there is a certain amount of friction that occurs. This friction produces heat. As water moves through the pump's impellor it is taking on that heat thus raising your water temperature. When you slow the water down with a valve this increases the amount of time a given volume of water spends in contact with the impellor translating to even more heat being applied to your water. Your water might leave the pump as much as two degrees warmer than when it entered. This means that your chillers run more to keep your water at a constant temperature; leading to more power expenditure. On the other hand, the VFD pumps require no valve. If you want to slow the water speed you simply turn the power down. This means that the impellor turns slower. This creates less heat to be transferred to the water. And since no valve is involved the water isn't being kept in constant contact with this heat source for significant periods of time and the temperature remains relatively unaffected. The chiller doesn't have to work as hard to keep the water at a constant temperature. In the long run this cuts down on our overall power expenditure.

Why do VFD pumps matter? Simply put they matter because they directly contribute to a significant decrease in the power consumption of the Shreveport Aquarium and, I think, that is step in conservation that we can all appreciate.

Conserving Water

Cameron Roberts – Operations Supervisor



The US population has doubled over the past 50 years, while our thirst for water has tripled. The Environmental Protection Agency estimates that at least 40 states anticipate water shortages by 2024, so the need to conserve water is critical. Plumbing, heating/cooling and irrigation needs comprise a large percentage of typical water use.

The Shreveport Aquarium uses many techniques that can also be used in homes and businesses. These strategies include installing water-efficient plumbing fixtures such as sinks and toilets. These fixtures are equally effective but cut water usage in half, from 3.6 gallons per flush to 1.6 gpf, according to the National Conference of State Legislatures. Another example is irrigation systems, which can be attached to weather monitoring devices. During rainfall, these devices prevent overwatering which can occur with timer-based irrigation.

Water conservation also includes reducing litter and other pollutants. Trash thrown into the street is washed into the sewer, which eventually dumps into rivers. The trash eventually accumulates in the ocean; the Pacific alone has a garbage patch the size of Texas. Sea turtles in particular are susceptible, as they choke on plastic bags they mistake for jelly fish. Plastic which holds soda cans together can strangle marine life, and pollutants such as oil can poison or otherwise harm animals.

The global impact of human activity is near incalculable. Earth will outlast our actions, but humankind cannot escape their consequences. It is time to take responsibility and clean up our act.

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https://www.shreveportaquarium.com/conservation-krewe