

Renowned Newport Aquarium Uses YSI Instruments to Maintain Water Quality



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YSI Aquarium Monitoring
Application Note A541-02

The Newport Aquarium, located in northern Kentucky just across the river from Cincinnati, is one of the finest public aquariums in the world. The aquarium houses 70 exhibits and 14 galleries, including five seamless acrylic tunnels totaling over 200 feet in length, featuring an amazing variety of aquatic life from around the globe.

One of the acrylic tunnels immerses visitors in the color and splendor of an Indo-Pacific coral reef environment. With approximately 60,000 gallons of seawater, this exhibit introduces visitors to colorful Tangs, playful Unicorn fish, rare Groupers, Honeycomb Moray Eels, and more in a setting as close to the species natural habitat as possible.

Water Quality

One of the main display tanks teems with coral reef fish and anemones. The YSI 5200A multiparameter continuous monitor is used on the tank to provide 24 hour water quality monitoring for temperature, dissolved oxygen, conductivity, salinity, pH, and oxidation reduction potential (ORP). In addition to constantly providing data, the 5200A will also set off an alarm to alert staff to any water quality problems that may occur in the tank.

The importance of water quality on maintaining a world class display is of paramount concern. Poor, or degrading, water quality conditions in a tank housing as many aquatic animals as a coral reef, can cause immediate concern. Signs of stress, poor coloration, torn fins, and diseases can quickly overtake a tank where the water quality is allowed to remain poor or fluctuate too greatly. The 5200A ensures water quality parameters stay within a user-selectable preset range and it sends out an alarm in case the values go too high or too low based on these conditions. The 5200A can also send a page or show an alarm state on the AquaManager™ desktop software. In addition, the 5200A can control for these conditions by turning on/off chillers, blowers, dosing controls, lights, etc.



A variety of YSI instruments are used to maintain quality displays at the Newport Aquarium.

Data

The pH and dissolved oxygen data is used to record water quality trends in the live coral tanks, and temperature data is gathered to record the effects the halide lighting may have on the tank's temperature.

YSI multiparameter sondes are also used to monitor the shark tank along with other exhibits for dissolved oxygen, pH, ORP, temperature, conductivity, and salinity. All of the data is downloaded into desktop software. The data is graphed and analyzed to understand the conditions throughout the tanks. The sonde measures pH over time as it degrades due to organic loading and acidic buildup due to filtration processing. The Shark Tank is buffered up with the addition of sodium bicarbonate. Quality data helps predict situations allowing preventative measures to avoid any major issues.

For additional information, please contact:

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Aquarium photo by Mark Alexander Photography, courtesy of Newport Aquarium.