Behind the Scenes at Shark Reef Aquarium

See what it takes to not just run a 1.6-million-gallon aquarium, but to do it in a smart and eco-friendly way.

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Whenever the co-opted environmental buzzword “green” is elicited, the last thing in people’s minds is the daily maintenance of 1.6 million gallons of water and the life-support systems that make it livable for more than 2,000 freshwater and marine animals — all of it right smack in the middle of the desert. But that is exactly what the Shark Reef Aquarium in Las Vegas does 24 hours of day, 365 days a year, and they do it while saving as much energy and reusing as much water as possible. In a city nurtured on excess, Shark Reef is a model of constraint, especially considering how it could run its operations, in terms of its energy and water usage, in such an atmosphere. As Shark Reef General Curator Jack Jewell pointed out, the Vegas of the past wasn’t exactly known for being eco-friendly.

Green Machines
For starters, Shark Reef makes its own seawater and does a 10 percent water change, or 140,000 gallons per month. The remaining 90 percent is funneled back into reclamation basins where it is filtered and reused. This equals roughly 2.1 million gallons of water reclaimed annually.

Jewell informed us (besides me, my wife and two daughters went on the behind-the-scenes tour as well) that Shark Reef is all about wise water use. “We reclaim as much as we possibly can. Ninety percent comes back to us, 10 percent is new water and we do use top-off water, but we’re really conservative both in terms of our water as well as our use of energy.

“Now, the thing that we do that helps with that [energy consumption] is we have VFDs, variable frequency drives, on every single motor. And what that does is that it runs the motor instead of using a valve, so you don’t have to valve it off like you might at home. The VFD slows the motor down and reduces the required amount of horsepower to move,” Jewell points to one of the giant blue sand filters in the distance, “that amount water. So, if it’s running at maximum flow, it slows the motor down to 60 percent and you save 40 percent. That’s very dramatic. You save a lot of energy and that’s on every single motor.”

Oh, by the way, each pump has a 1,800-gallon-per-minute capacity.

No corals were harmed in any of Shark Reef’s exhibits. That’s because the aquarium employs extremely realistic-looking, even lifelike, coral models in its exhibit tanks. You really can’t tell the difference when looking through several inches of acrylic. One of the companies Shark Reef relies on for its coral replicas fabricates and sells more than 300 different types of coral models.

Animal Care
Shark Reef monitors its life support mostly via an automated system. “We have audible alarms as well as page alarms, which sends pages out to our life support crew, both when they’re here and at home. They can answer and it shows exactly what’s going on — temperature, salinity, flow rate ...” Not to worry, though, as someone from life support is always on duty.

Besides front office personnel, Shark Reef employs about 30 people in animals care. “So it’s divers, animal care and life support. We also have two consulting veterinarians, who come once a week,” said Jewell, as we wrapped up our visit together.

I hope you’ve enjoy not just this video clip of my Shark Reef visit, but also the one in my previous blog. Of course, nothing is a good as an actual visit. For more information on the Shark Reef Aquarium at Mandalay Bay, Las Vegas, Nevada, see their website at sharkreef.com. Thanks again Jack.