Aquarium Maintenance: Planning for and Dealing with Power Outages

Drs. Foster & Smith Educational Staff

Many aquarium owners live in fear of the day when their power goes out and jeopardizes the life of their entire aquarium system. Almost anyone who owns an aquarium knows someone who has had their entire tank wiped out by a power outage. No matter where you live, you are eventually going to have a power outage, and how well your tank handles it will depend on how prepared you are. Every aquarium owner needs to have a plan and a few necessary pieces of equipment on hand for dealing with power outages. This article will explain the dangers associated with power outages and will give some tips for coping with the problems that result.

Localized power outage

There are two types of power outages, localized and general. The localized power outage is when a fish tank's main power source is disrupted, either by having the power cord come unplugged or by having a fuse blow or a circuit breaker trip. Having all plugs securely fastened and protected from foot traffic and childrens' hands are a must. A tripped circuit breaker can be easily fixed, but the source of the problem needs to be identified. A cracked heater or frozen pump motor may be the culprit. A simple plug-in alarm device that will sound off when power is interrupted is worth every penny in preventing accidental localized power loss. In big reef systems, having 2 or more electrical circuits to the tank is probably a good idea and may be necessary to run the lights, UV sterilizer, chiller, etc. By spreading out your pumps, heaters, air stones, etc. over these circuits, you can eliminate a catastrophe if one of the circuit breakers trips when you are not home.

Ground fault interrupted outlets are required to be used with aquariums in some states and are very important in preventing electric shock near water. One drawback of these outlets are that they are very sensitive and even the tiniest amount of stray voltage can trip them rendering a loss of power. When using these devices, make sure they are installed by a professional and ensure that all of your electrical equipment is functioning properly and appropriately sized.

Generalized power outage

The generalized power outage is usually a result of a loss of power due to a downed power line or damaged transformer. Most of these power outages are relatively short, but occasionally, can last days. Despite all of your precautions, these types of outages cannot be prevented and must be dealt with when they occur. Knowing what will happen to your tank and having a plan is critical to prevent a serious problem with your aquarium.

One of the first things every aquarium owner should do after setting up their tank and before adding any fish is to simulate a power outage. By turning off all of the power for several minutes, you can check your plumbing to make sure you do not have any water siphoning back that could drain your tank. When you start your tank back up, you can make sure that the pumps and other equipment will function properly. If your equipment does not perform adequately, now is the time to make changes, before you add your fish.

Short term power outage

Power outages of less than an hour probably will not significantly affect your tank. Even in very hot or cold weather (which is, incidentally, when most power outages occur), your oxygen levels or temperature should not change significantly. In fact, intervening to correct the temperature, etc., in a very short term power outage, may stress the fish more than the outage itself.

Long term power outage

Depending on the size of your tank, the room temperature, and how densely your tank is stocked, a power outage can be considered long term in as little as an hour, but for most tanks, it is considered any disruption of power that lasts for more than three hours. If you have a large or expensive tank with a sensitive fish population, a portable generator is a very cheap investment. Having the generator wired into the circuit so it goes on when the power goes out is also a good idea, if you are away from your tank for long periods of time.

Changes which occur during a power outage

Oxygen depletion

One of the first things that happens when your power goes out is that the oxygen level in your tank begins to decrease. There are several things that speed the depletion of oxygen including:

- A heavy fish load
- Increasing temperature
- A heavy plant load
- Feeding the fish
- An increase in fish activity

Fish require oxygen, so if the tank is heavily stocked, moving some of the fish to a lightly stocked tank may help. If you have a heavily stocked tank and live in an area where power outages are common, a generator may be a wise purchase.

*Unauthorized use of any images, thumbnails, illustrations, descriptions, article content, or registered trademarks of **Foster & Smith, Inc.** is strictly prohibited under copyright law. Site content, including photography, descriptions, pricing, promotions, and availability are subject to change without notice. These restrictions are necessary in order to protect not only our copyrighted intellectual property, but also the health of pets, since articles or images that are altered or edited after download could result in misinformation that may harm companion animals, aquatic life, or native species.*

Plants will contribute oxygen to a tank when under direct lighting, but when darkness occurs, they begin using oxygen and releasing carbon dioxide. While covering a tank to decrease the light is a good idea for a fish-only tank, it may be more detrimental in a freshwater planted tank.

Fish can go for days without eating, so avoid feeding fish in a power outage because it will increase their activity level therefore increasing the bacterial activity causing an accelerated loss of oxygen.

Try to decrease the activity in the tank by darkening it with a sheet, etc. (unless you have a planted tank), and not disturbing the occupants. Quietly resting fish use less oxygen then active fish.

Consider having a battery operated pump/air stone or two on hand. While it will not replace your current air stone and pump, it will add some oxygen back into the water.

Change in temperature

After oxygen depletion, temperature fluctuations are the next most dangerous change in a power outage. Most well-insulated homes will maintain their temperature for several hours. Try to keep the temperature in the room as steady as possible. In cold weather, building a fire in the fireplace or draping a blanket over the tank to help insulate it may help. In severe cases, adding hot water or ice to the tank may be tried but realize that in a large tank, the amount of hot water or ice that will need to be added to significantly alter the temperature may be unreasonably large. Also, the sudden change in temperature as you add the water/ice, even if it is only several degrees, may be more stressful for the fish than the gradual temperature change due to the outage. Long power outages in very hot weather can be particularly deadly to a reef tank if the owner does not have a generator.

Once the power comes back on

When power is restored, be aware that the biological waste present in the tank and mechanical filtration pads may have started to be broken down anaerobically producing methane and hydrogen sulfide. These gasses can be very toxic to fish, so try to remove and clean the filter pads before the power comes back on. If the power outage lasted more than several hours, realize that your fish will be very stressed. Monitor them closely while disturbing them as little as possible for the first few days. If you see signs of ich or other diseases developing, take appropriate treatment action. Monitor the water quality as well and do not be afraid to do water changes to help get the water quality back to normal.

While a power outage can be a disaster for aquarium owners, it does not have to be. By taking a few precautions and buying some basic emergency equipment, you can protect your tank from the potential dangers of your next power outage.

*Unauthorized use of any images, thumbnails, illustrations, descriptions, article content, or registered trademarks of **Foster & Smith, Inc.** is strictly prohibited under copyright law. Site content, including photography, descriptions, pricing, promotions, and availability are subject to change without notice. These restrictions are necessary in order to protect not only our copyrighted intellectual property, but also the health of pets, since articles or images that are altered or edited after download could result in misinformation that may harm companion animals, aquatic life, or native species.*