Aquarium Chillers: How to Keep Water Temperature Consistent

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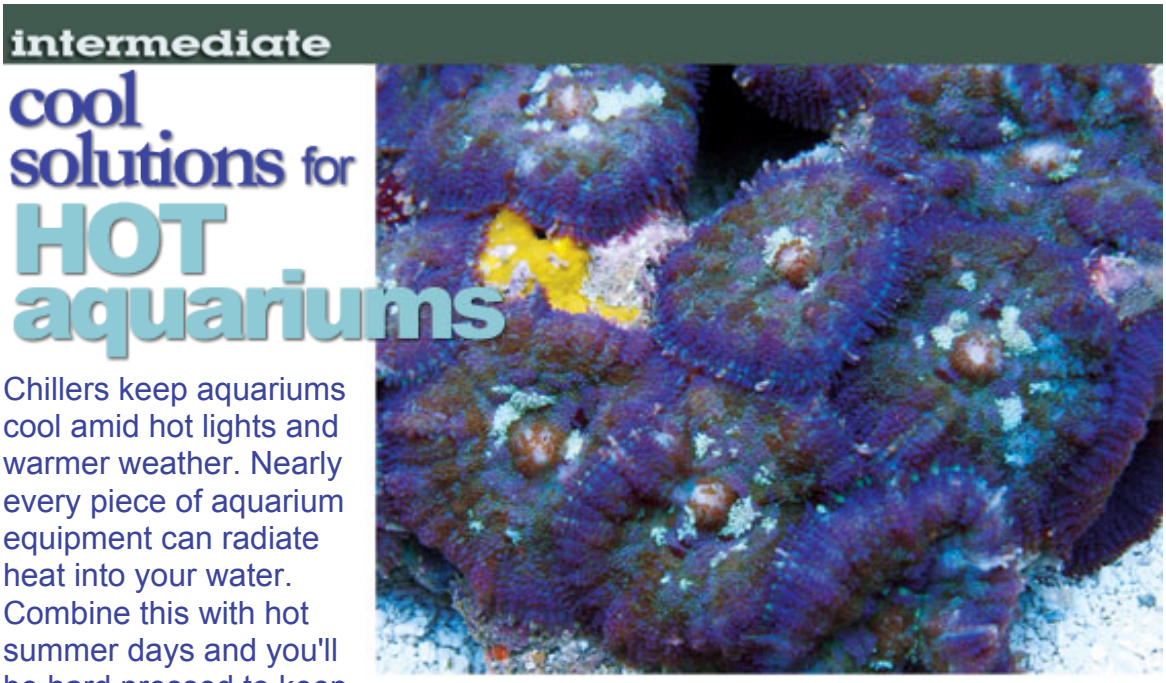

Chillers keep aquariums cool amid hot lights and warmer weather. Nearly every piece of aquarium equipment can radiate heat into your water. Combine this with hot summer days and you'll be hard pressed to keep your aquarium temperature in the safe zone.

Warm aquarium water can directly affect temperature-sensitive inhabitants but also jeopardize the overall health of the aquarium by limiting dissolved oxygen content. Learn how aquarium chillers work and why you may need one to help decrease water temperature.

→ How chillers work

If you're considering a reef aquarium or have an aquarium with rising water temperature, it's time to learn more about chillers. These modern cousins to the dorm room mini fridge help you keep your cool even as things heat up. Contrary to common belief, aquarium chillers lower water temperature by removing heat rather than "chilling" or creating cold.

Similar in function to refrigerators or air conditioners, aquarium chillers rely on a refrigerant that is compressed and chilled within its internal plumbing. As warm aquarium water flows past the chilled portion of the heat exchange system, heat is drawn out and transported to the radiator grill. There, heat is released into the ambient environment with the aid of a ventilation fan.

Q: In shopping for chillers, what does the BTU/hr rating mean?

A: The ability of a chiller to remove heat per hour is measured in BTUs (British Thermal Units). One BTU will raise one pound of water (approximately one pint) 1°F. A unit with a higher BTU/hr capacity is more efficient and will remove heat faster than one with a lower BTU/hr capacity.

→ Who needs to chill?

Chillers help provide stable aquarium temperatures even as other environmental factors want to warm up your water. Designed for convenient water temperature control, all you need to do is set your optimum temperature on the unit using a thermostat control.

If your aquarium setup is affected by the following factors, you should consider getting a chiller:

- High output lighting or Metal Halide lighting.
- Poor air or water circulation.
- Direct sunlight.

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- Warm weather/climate.
- History of fish/coral problems.

→ Which chiller is right for me?

Aquarium chillers are available in two basic styles: In-line or drop-in. The main difference between the two is the manner in which aquarium water comes into contact with the heat exchange system. In-line chillers use an internal heat exchange system. As such, they rely on water pumps to actively transport warm aquarium water to the heat exchange system and carry the cooled water back into the main system. These chillers require plumbing and installation should be incorporated into the overall aquarium plan prior to execution.

In contrast, drop-in chillers have an external heat exchange system or probe. The probe is placed into the sump area of wet/dry filters and comes in direct contact with aquarium water. While the chiller does not require any additional plumbing a properly sized return pump is required to ensure efficient temperature control.

→ Tips for selecting the right chiller

- In addition to aquarium size, take into account the number of aquarium equipment you employ such as water pumps and lighting fixture. These additional devices generate excess heat that can reduce chiller efficiency.
- If your aquarium falls on the upper end of chiller recommendations, choose the next larger chiller. For example, if you have a 50-gallon aquarium and the chiller is for aquariums up to 50 gallons, then select the next size up to ensure adequate cooling.

→ Tips for optimizing chiller performance

- Good ventilation is essential for optimum chiller performance. Maintain a buffer zone at least 1 to 2 feet around the entire unit.
- Use cooling fans to actively disperse chiller exhaust and minimize heat and moisture buildup.
- For in-line chillers, maintain a lower flow rate to allow longer contact time between warm water and the cooling element.

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