

Water Movement: Laminar Flow, Turbulence & Surge

Drs. Foster & Smith Educational Staff



3 types of beneficial aquarium water movement

Water movement (current) is crucial to the enduring health of your aquarium. Currents help feed and nourish inhabitants, wash away waste

products and sediment that promote damaging algae growth. Incorporate one or more of the following three types of water movement to create the best conditions for your aquarium inhabitants.

Laminar Flow

Steady, unidirectional flow (produced most often by [powerheads](#)). Depending on your aquarium setup, you can create laminar flow only or multi-directional flow with a powerhead by adding PVC pipe and fittings to the outflow. Or, implement an oscillating powerhead, which rotates within the aquarium and directs water over a wider area. Several oscillating powerheads, used together can create beneficial turbulence. The [Switching Current Water Director](#), installed on the return of your main filtration, contains a pressure-activated switching valve that effectively splits your return line into two alternating outputs to create beneficial currents.

Turbulence

The random flow of water in multiple directions. Turbulence is extremely desirable and difficult to replicate. Use electronic [wavemakers](#) with several standard or oscillating powerheads to produce turbulence by turning the powerheads on and off randomly.

Surge

Similar to laminar flow, only stronger, for a shorter duration, and followed by a weaker reverse flow. Think of the sudden movement of an entire school of fish in a single direction, followed by their sudden return to the initial location once the surge passed. Like turbulence, surge is very difficult to replicate.

With proper planning and equipment, you can create some of these healthy water motions within your aquarium.

Related Information

[Aquarium Wavemakers: What are they? How do they work?](#)

[A Natural Approach to Reef Keeping](#)

[Professional Tips on Improving Water Movement](#)

[Hydor Koralia Water Circulation Pump](#)