All clear in the pond?

Green water is a problem with which every pond owner is familiar. Regardless of whether a garden pond, fishpond or swim pond is involved. The cause is suspended algae. In the spring and in the summer months almost every pond is affected by suspended algae. With severe infestation the viewing depth in some cases is only a few centimetres. However suspended algae is not just a visual problem. If there are fish in the pond, due to suspended algae at night the oxygen content can sink so dramatically that even total loss of the fish stock has occurred. Use of UVC lamps is a helpful countermeasure. But how far advanced is today's technology for the new devices?

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Photo, top
The new Bitron Eco

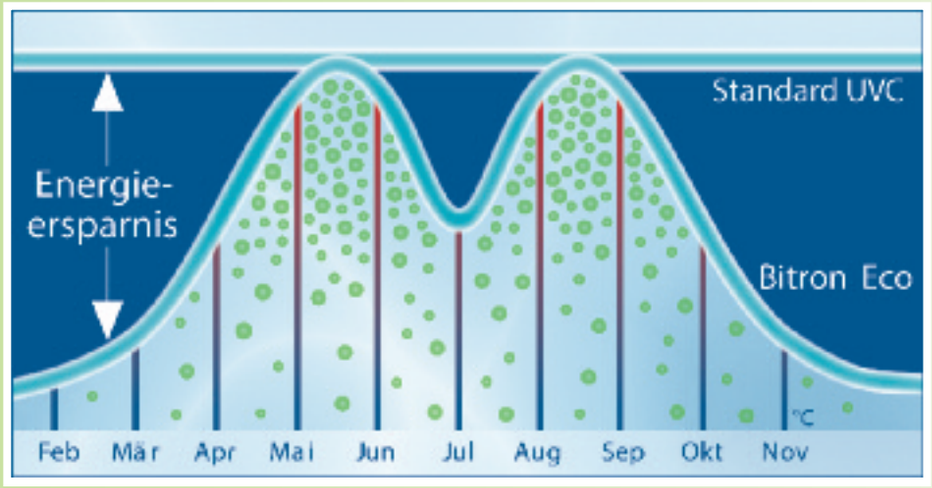
Photo, right
Season-dependent control lowers energy costs by as much as 50 %.

As most pond owners should already know, the use of UVC emitters is a useful countermeasure against »green water«. But which emitter is suitable, and what capacity should be considered? For garden ponds and swim ponds, a general rule of thumb applies that 1 watt of power suffices for one cubic meter of pond volume. However if ponds are permanently subjected to high sunlight incidence, doubling the power is an effective measure. For ponds with fish stock – particularly for koi ponds – experts now recommend 4 watts per 1000 l of water. Naturally these rules of thumb depend on the capacity of the device, the power in watt, as well as the reactor design and flow-through rate.

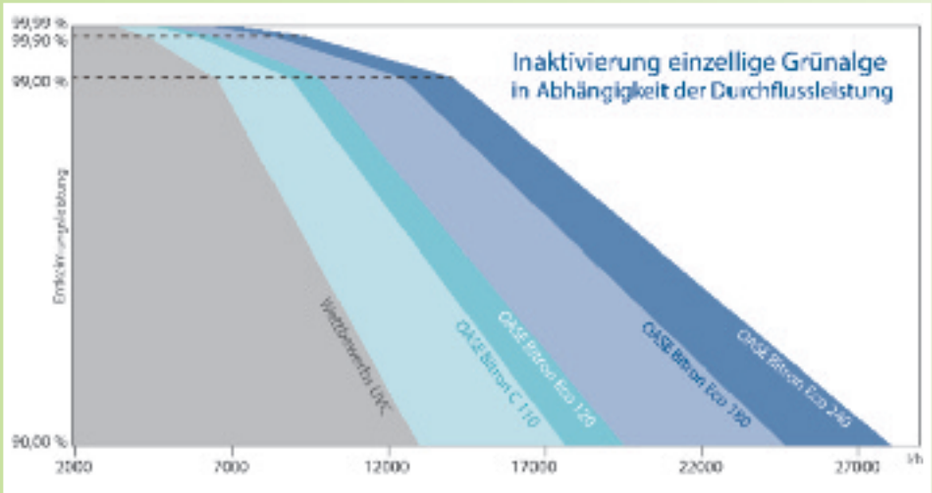
Flow-through rate, in turn depends on pond size and the circulation rate determined by the pond owner. However UVC clarifiers do not just »control« suspended algae, they also have a disinfecting effect. This means the level of germs in the pond can be significantly reduced for the well-being of pond inhabitants. For years UVC systems have also been used for disinfection in municipal drinking water treatment applications.

As effective as UVC lamps are, they do, however, have a minor disadvantage. The efficiency drops with increasing duration of operation. Unfortunately you cannot tell when the capability is exhausted by looking at the lamp. Consequently not a few pond owners replace the bulb prophylactically each year without knowing whether the capacity would still suffice. OASE has now solved this problem with the new Bitron Eco.

All devices of the new generation are equipped with an automatic control system. Normally UVC devices irradiate throughout the entire year with undiminished capacity. However if a pond in our latitudes is considered over the course of the year it is clear that photosynthetic activity – and thus algae growth – depends on pond temperature. If pond temperatures drop, photosynthetic activity also drops As a result less UV capacity is required. The control system of the Bitron Eco is perfectly adapted and programmed for this situation. In the first months and last months of the year the capacity is reduced, and the Bitron Eco only irradiates with full



Algae and pathogen burden in the course of the year:
Classic UVC device (top axis) and the power curve of the Bitron Eco that follows the course of the year.



Photo, top
The new Bitron Eco

Graphic, left
Sterilization capacity of different UVC lamps in the UV reactor with closed bypass.

capacity in the middle of the year. The advantages are clear: Not only does a pond owner save up to 50% energy, and thus money, a pond owner also simultaneously protects the environment with up to 500 kg/year less CO. One of development objectives as also to increase efficiency. This is achieved through an optimal balance of flow-through capacity, duration of irradiation and dwell time. With the new devices, the integrated, automatic bypass control, as well as the patented cleaning rotor, which continuously cleans the glass cylinder, require a larger volume housing in order to fully exploit the radiation capacity. Moreover, the Bitron can now also be easily installed horizontally or vertically – even in existing systems. And because the housing is protected (IP 68) the Bitron can also be placed separately at the edge of the pond.

With introduction of the new Bitron Eco, the newly-developed Eco bulbs are used. With an operating capacity of 12,000 hours the bulbs can operate at their full capacity for 1.5 years However thanks to the integrated, as needed control, the period between bulb replacement extends to up to three years. In this regard, the integrated operating hour meter shows the replacement intervals with perfect precision.

Handling has also become significantly more user-friendly. If the bulb needs to be replaced this is now accomplished with a few hand motions via a quick-release closure: Without having to dismantle the quartz glass. Bulb replacement can even be executed in running operation, since the quartz glass and the bulb head are now separate, and the part that conducts water is an enclosed system.

Summary

With the new Bitron Eco radiation intensity is optimally dosed (for our climactic conditions). And together with the newly-developed bulbs with a service life that thus extends for up to three years, OASE is really justified in adding »Eco« to the product name.