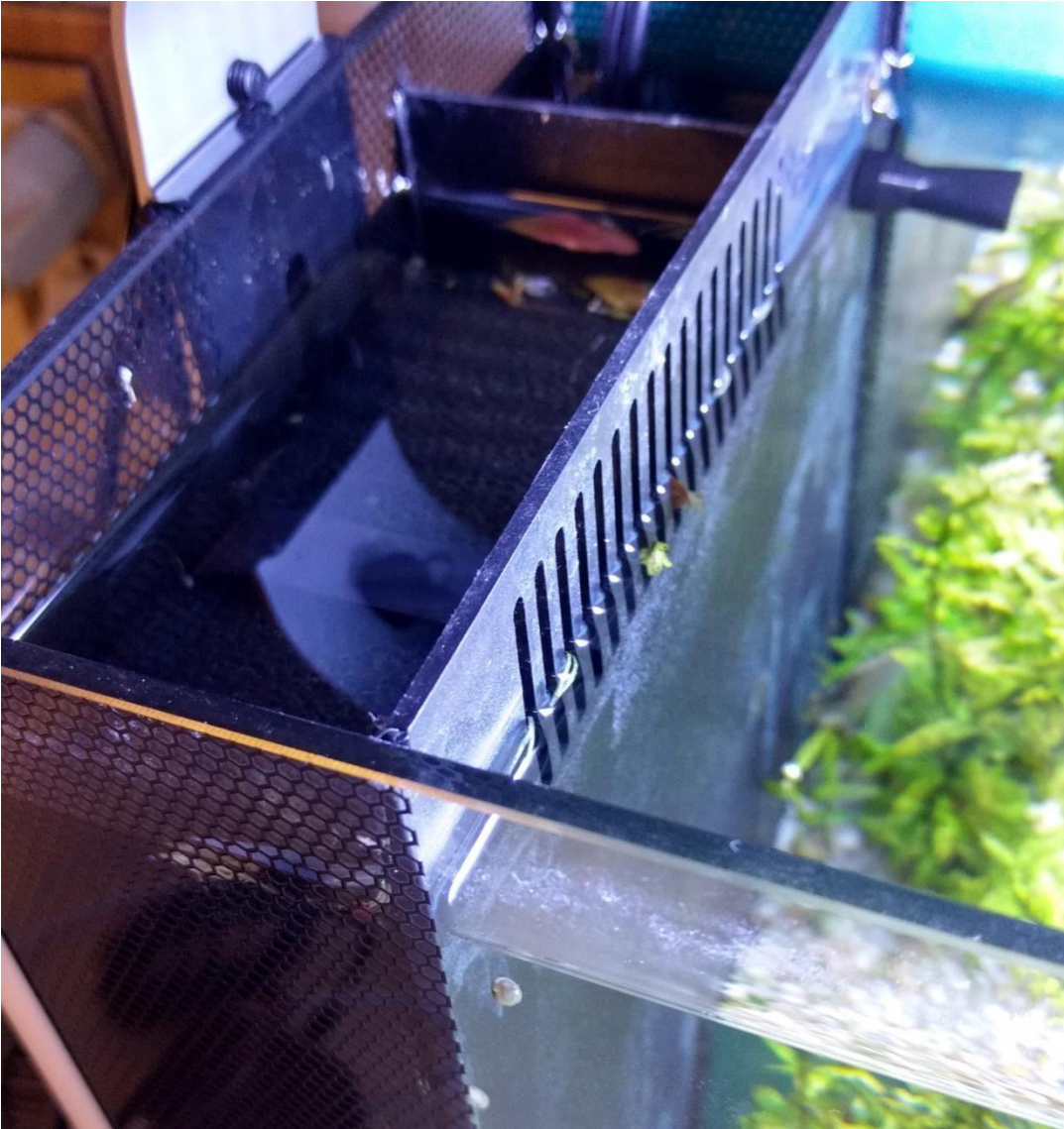


“MODERN FILTRATION”, Talk by Stephan Tanner

SWAMAS Workshop, October 2013



Polyfoam in-tank matten filter

FILTER TYPES

This was the first time this program had been presented and it was excellent. Stephan talked about the two major types of filtration: mechanical and biologic. Mechanical filtration removes solid particles with nets, floss, and screens. It is the biological filtration that is the most important because it breaks down harmful substances that are soluble such as ammonia, urea, and carbon dioxide. Established bacterial films in the filter and on the plants and aquarium sides are where these bacterial films exist, but it takes time (around 2 weeks or more) for them to establish and become functional. The largest surface area supporting these bacteria films is usually in the filter, whether it is floss, sponge, bio-balls, or other medium. Charcoal can chemically remove some of the soluble substances, but soon is exhausted and is just another surface for the bacteria to establish a biologic film. Filter medium efficiency depends on several factors including: volume, weight,

compression (how much it mashes down), surface area, flow rate, material longevity, time between cleanings, and long term cost. Stephan then went on to describe several materials used today. Floss can quickly mash down and not be as effective. Bio-balls are OK but don't have a lot of surface area for the bacterial films. Closed cell polyester foam is cheap, but clogs easily and has a short life. Reticulated polyester foam has a large surface area and is easy to clean but has a short life. Most foam used in furniture has toxins added and is not recommended for use with fish.

BEST FOAM

Stephan recommends using reticulated polyether foam (Poret) because it lasts a long time, has a large surface area, and is light and easy to clean. It is a proven material that is used for foam filters that he sells. It is a fairly rigid foam material that comes in several different pores-per-inch sizes, with the smallest pore size having the most surface area, but needing cleaning a little more frequently. He demonstrated several new ways to use this foam, including sheets of it that use a section of the tank as the filter (Matten filters). This material has very little restriction of water flow, even with the smallest pores. He advocates cleaning these filters only once every 12-18 months, which is considerably longer than with most filters. Cleaning is simple also because of the free water flow. Just rinse them under the hose outside or a faucet. It is best not to squeeze these filters to clean them, since that breaks down the material faster. Also, you don't want to remove the bacterial film on the foam surfaces, just dislodge the solids trapped therein. Don't combine water changes and filter cleaning the same day or you may lose fish due to the stress. A neutral pH and temperature of 70-85 degrees is best for bacterial cell growth in foam filters. Cell growth takes several days and cycling a tank can take several weeks. Bacterial films in filters are very sensitive to medications used on fish, so be cautious and use them sparingly.

Chase Klinesteker