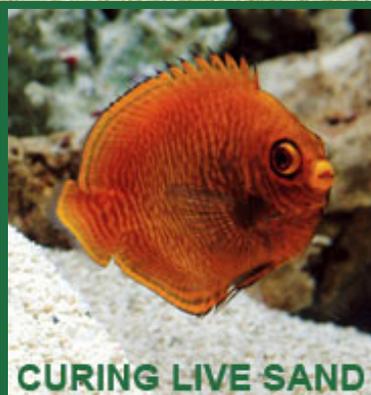


Live Sand as Refugium Substrate

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Live sand must be cured before it can be added to your refugium setup. It should be gently rinsed with saltwater to remove any coarse organic debris that may foul the water in the aquarium. After rinsing, the sand may be placed directly in the refugium.

- Remove the bag(s) of sand from shipping box and dump sand into a new 5-gallon bucket, filling the bucket 1/2 full with live sand.
- Add saltwater from the refugium until the bucket is 2/3 full of water and sand.

Q How can I add live sand to my tank without making the water cloudy?

A. The best way to add live sand without making the water cloudy is to do it when you first set up your refugium. Place a plastic bag over the sand as you slowly pour the water in to minimize the amount of sand being kicked up by the water. To add live sand to an existing system, you must pour it very slowly. Chances are you will still have some minimal clouding, but it will settle in an hour or so.

REFUGIUMS, OR BIOACTIVE SUMPS, are a popular and beneficial addition to the saltwater system. The inclusion of a deep sand bed in the refugium can increase biodiversity, create a healthier environment, and produce a more natural food source for copepod and microalgae consuming inhabitants.

Refugiums provide a safe haven or refuge for a diverse population of microfauna, which feed and thrive on the detritus and wastes from the main aquarium. This microenvironment or nursery for microcrustaceans, worms, and other microfauna provide natural filtration that help maintain aquarium water quality.

Macroalgae, such as chaetomorpha grown in your refugium, feed upon excess nutrients including nitrate and phosphate within the water. This keeps waste product levels in check and helps maintain water quality essential for



- Slowly stir the sand by hand until the water within the bucket becomes cloudy with debris.
- Discard the dirty water in the bucket and place the sand back into the shipping bag.
- Lower the shipping bag to the bottom of the refugium. Disperse the sand slowly and evenly across the bottom of the refugium.
- Repeat the previous steps until all of the sand has been placed into the refugium.

overall aquarium health. In addition, macroalgae can release compounds into the water that are thought to aid the immune systems of the inhabitants.



The two most popular substrate options in bioactive sumps are [reef mud](#) and [live sand](#). Reef mud is an excellent source of trace elements, minerals, and nutrients. Live sand provides additional benefits because it is "alive" with millions of beneficial bacteria. This bacteria reduces the maturation period for the refugium and provides biological filtration benefits sooner.