

ATScrubber™ Maintenance Protocol

ATShuttle and Sea Saw Surge Models: Can be installed above the tank, sump, or any other point of access to the system's water column. The only important thing is that the discharge end of the shuttle rests squarely over the water column. Anything can be used to support the opposite end of the shuttle. This end should be elevated ½" to ¾" above the height of the discharge end.

Initial Weight Installation: (Does not apply to Sea Saw Surges.) Counterweight (lead shot) was added during assembly, such that your ATScrubber bucket should fill until the point where the water almost reaches the end of the bucket before it dumps. When adding a seed screen, weight should be added to conserve this, once the screen is in place. Inland Aquatics offers pre-fabricated ATScrubber™ weights; however, lead shot works equally well.

Pump Requirements: The pump model required will vary with the amount of head and pumping distance of a given installation. Generally, the dump cycle should average 20-30 seconds between dumps. Any pump that provides enough flow to create such a cycle will work. The following table shows the pumps we recommend for various common installations.

	Head (ft)	zero	2'
Sea Saw Surge Sump		Maxi Jet 400	NA
Sea Saw Surge 150		Maxi Jet 400	Maxi Jet 900
Sea Saw Surge 300		Maxi Jet 900	Maxi Jet 1200
Double Sea Saw Surge HOB		Maxi Jet 1200	
Mini ATScrubber		Mini Jet 1200	NA
ATShuttle 100		Mini Jet 1200	Mag Drive Model 5
ATShuttle 250		Mag Drive 500	Mag Drive Model 7

Adjusting the Skimmer Box: (May not be relevant to all installations) The skimmer box removes accumulated proteins from the surface of the water by creating a cascade (water fall) between the water level of the tank and that of the skimmer box. Keep in mind that the skimmer box also makes it much easier to run the pump dry due to evaporation. This is especially true on smaller systems. It is for this reason that we recommend the Mini Jet, as it can run dry without damage to the pump. **We highly recommend the installation of a level controller to eliminate this concern.**

Mini ATScrubber: Set the skimmer to a level such that it only begins skimming just before the bucket dumps. This will allow for the maximum allowance for evaporation. If a level controller is used, the skimmer box can be set to skim at all times with no concern.

Photoperiod: Initially, a photoperiod of 18 hours is recommended. This allows ample time for the absorption of any ammonia generated due to curing rock or other "cycling" within the system. However, keep in mind that this affords significant nutrient uptake ability. We strongly recommend ammonia and nitrite levels be tested, at least every other day, during any curing process, as it will provide you with a much better understanding of the function and benefits of your new ATScrubber™. STANDARD RUNNING PHOTOPERIOD should be between eighteen and twenty four hours, depending on bioload. The ATScrubber should always be illuminated when the tank lights are out. For example: For a tank with a heavy fish load and display photoperiod of 9 am to 9 pm would run the ATS from 6 pm till noon. **NOTE: When dealing with excess phosphates, run a 24 hour photoperiod.**

Seeding the ATScrubber: A seed screen is not necessary, as algae will develop on a dead screen under an illuminated dump bucket. A seeded screen develops much more quickly. If you purchased a seed screen, secure it with the screen lock, **on top of the dead screen**. If a seed screen is unavailable, placing algae scrapings under the very back of the dead screen will also speed screen development. (Be sure to keep an eye on the scrapings for the next couple of days to ensure they don't wash out.) By the fifth or sixth day, you should notice new growth on your screen. *Enteromorpha flexuosa*, a long, stringy macroalgae, resembling strips of green cellophane, is almost always the first alga to grow on a bare screen. It takes 4-6 weeks for healthy turf algae to begin to takeover. Because

Enteromorpha grows very long and retains a lot of water, the screen will have to be scraped much more often, or more counterweight added, during this period. (Not true of Sea Saw Surge Models)

--- We highly recommend dosing BioTrace to your ATS-driven system. In addition to aiding algal development on your screen and/or in your Refugium, the trace elements and amino acids in Biotrace will also benefit your soft corals and mushroom anemones. Begin to dose Biotrace (according to the manufacturer's recommendation) as soon as your screen begins to develop. We recommend you continue using Biotrace as recommended on the bottle.

--- After seven days, your screen needs to be scraped. Any rigid plastic, such as a credit card, will do the job, but an Inland Acrylic Scraper is recommended. (A complimentary acrylic scraper was likely included in with your new ATScrubber.) **Scrape the screen every seven days, regardless of whether it looks like it needs it or not. Screens infested with amphipods look like they don't need scraped, yet the only way to fix this is to follow the instructions below.** We recommend the lights always be used between 18 and 24 hours per day and that the screen be scraped, on a regular cycle. **Note: The screen is always returned in the same orientation after scraping. DON'T FLIP THE SCREEN OVER!!** The scraping process includes:

- 1) Remove screen(s) from the bucket, along with any turfs growing on the bucket(s).
- 2) Use the scraper to remove algal films from bottom and sides of the bucket. **Failure to keep up on this will result in coralline algae growth which provides refuge to amphipods. This will result in FAILURE of your ATScrubber!**
- 3) Place the screen on a solid flat surface and scrape the top side vigorously until very little algae remains above the top layer. Algae will remain BETWEEN the layers. Discard the algae
- 4) Rinse the screens with room temperature fresh water to remove loose algae and any herbivorous creatures and return to the bucket(s) immediately.

Long Term Screen Maintenance: It is very important to keep an eye out for Gammarus shrimps and other herbivorous amphipods and copepods when scraping the screen. Some of these potentially detrimental herbivores are as small as the period at the end of this sentence, but you will be able to perceive "motion" on top of the screen when they are present. Perform the following protocol any time infestations are detected, or if algal growth is inexplicably less than normal. Failure to perform the freshwater rinse will result in the proliferation of amphipods and an inefficient ATScrubber.

--- Fresh Water Rinsing Protocol:

- 1) Turn off the pump feeding your ATScrubber.
- 2) Remove screen(s) and dump all salt water from the bucket(s).
- 3) Scrape all coralline and other algae from the bottom and sides of the bucket(s)
- 4) Fill bucket(s) with fresh water and allow it to sit in there while you scrape the screen(s).
- 5) Scrape screen(s) per protocol above..
- 6) Check bucket(s), plumbing and other ATS surfaces to make sure they are clear of algae and well rinsed.
- 7) BEFORE REPLACING THE SCREEN, dump bucket(s) into the tank/sump, to remove dead and disoriented critters.
- 8) Replace screen, making sure the algae side is facing the light.
- 9) Make any necessary adjustment to the incoming plumbing and turn the pump back on.

*****Most Important Note:** *If you have any questions, or your ATScrubber does not function as you expected, please call Morgan, immediately, at (812) 235-7235, or e-mail to inlandaquatics@aol.com*