



RAIN2™

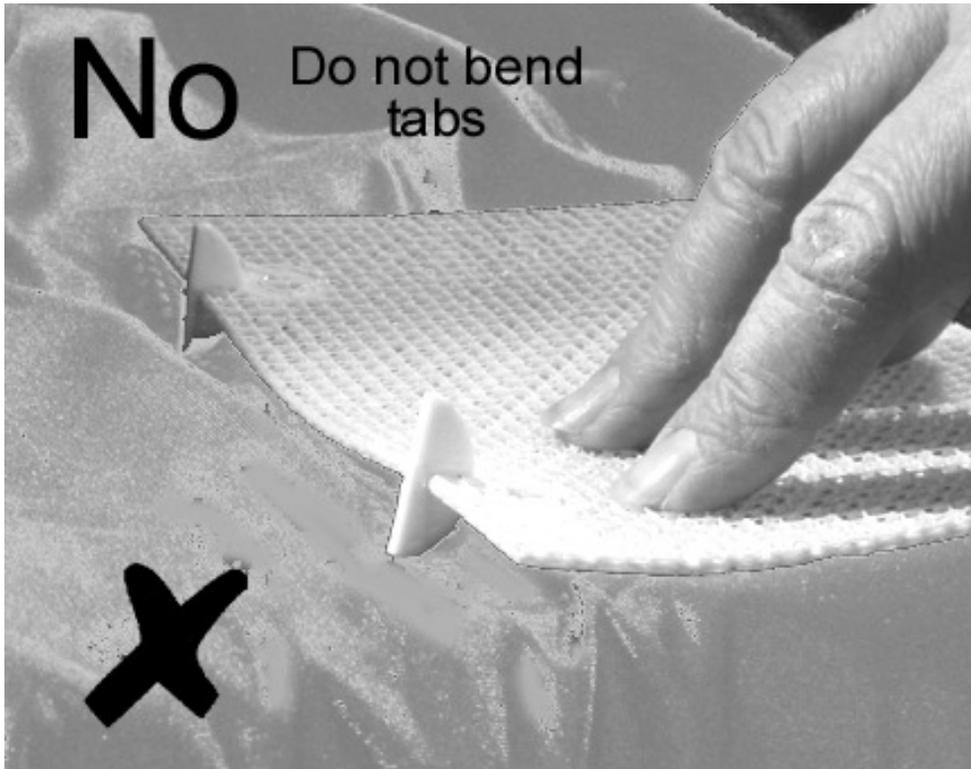
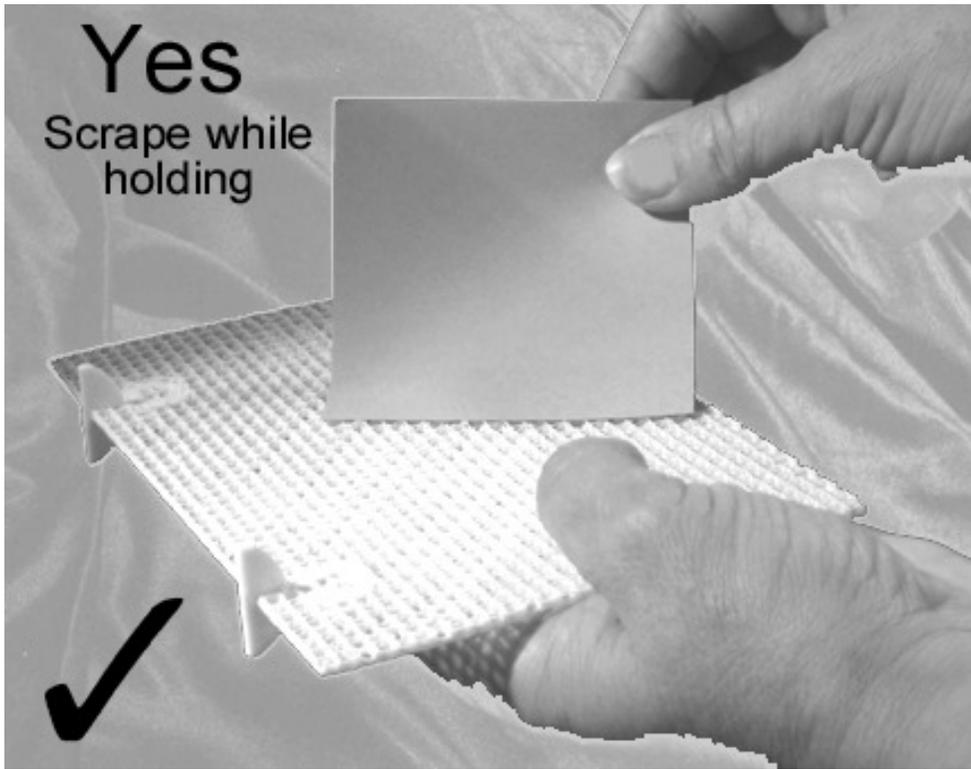
RAIN4™

**Pole Mountable
Waterfall Algae Scrubber ATS**

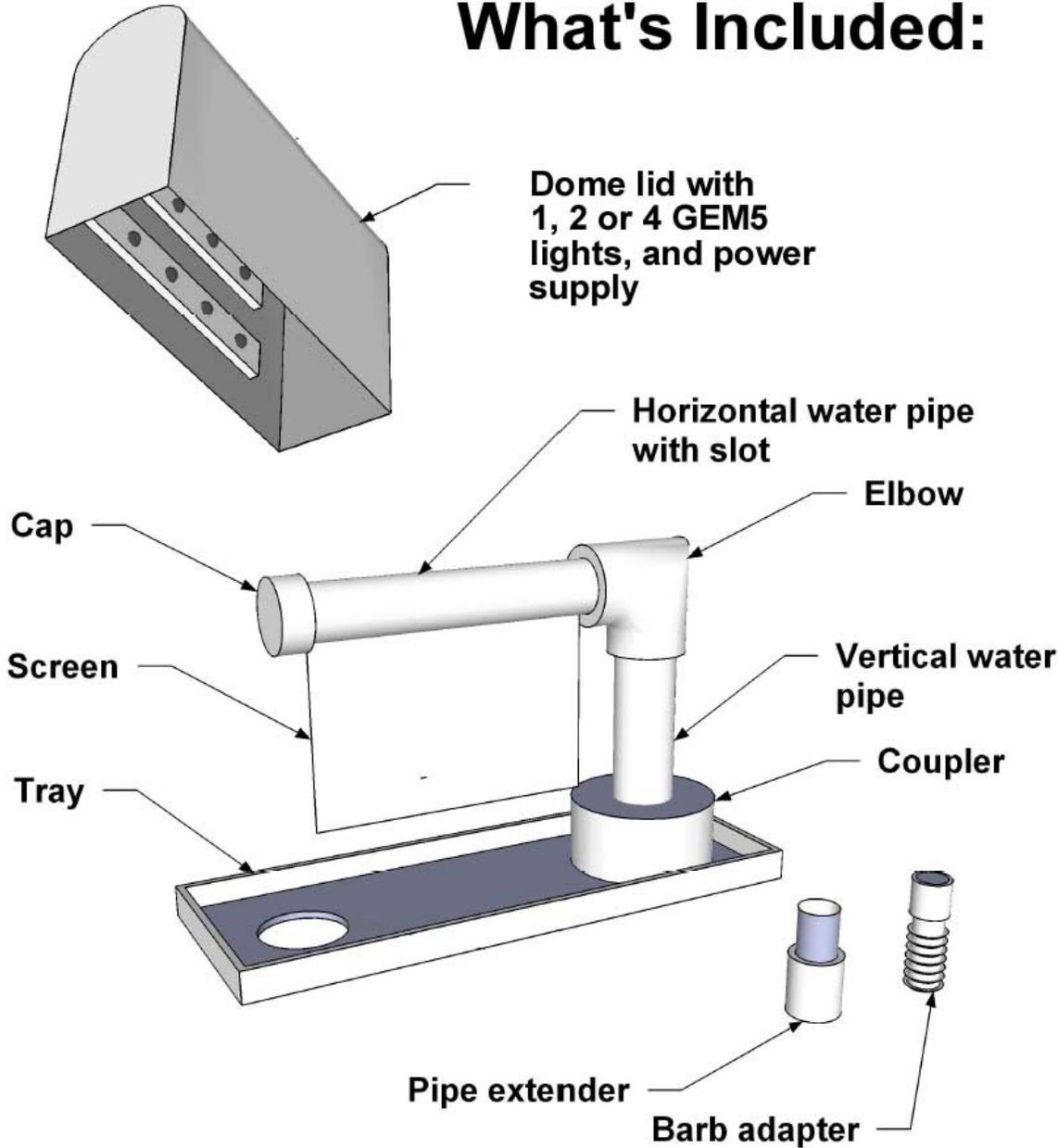
Updated January 2022

If your RAIN is not growing any color of growth within 2 weeks, email us, or ask at: www.AlgaeScrubber.net

Rain, Rain2, Rain4, Gem, Gem5, Green Grabber, the dome lid shape, and the red cap on the water pipe are trademarks (TM) or trade dress of Santa Monica Filtration®

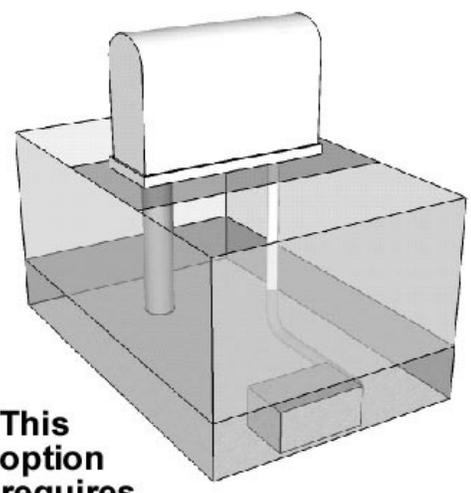


What's Included:

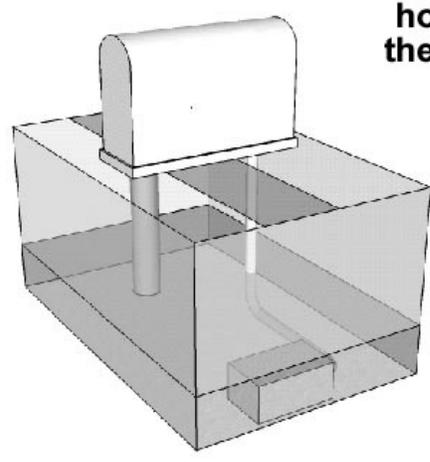


RAIN2

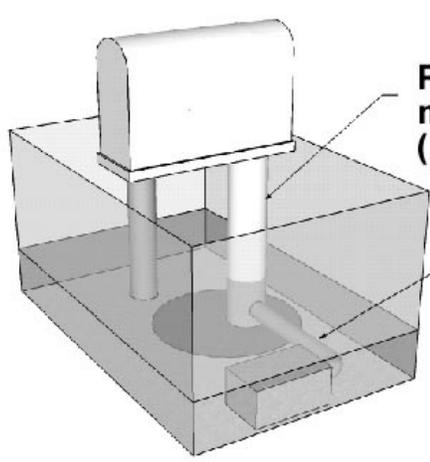
Mounting Options:



This option requires holes in the shelf



This option does not require holes in the shelf



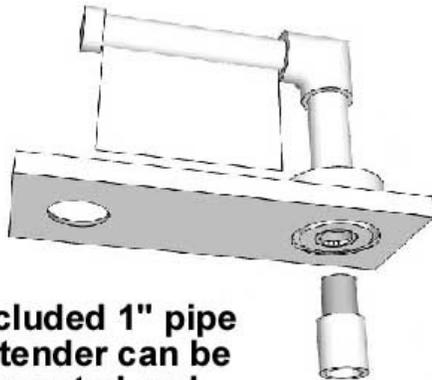
Pole mount (not included)

Water

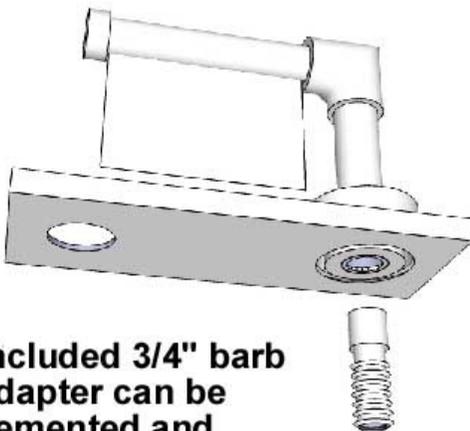
This option does not require a shelf. Just use 2" standard schedule 40 pvc pipe to support the scrubber and to feed water to it too.

RAIN2

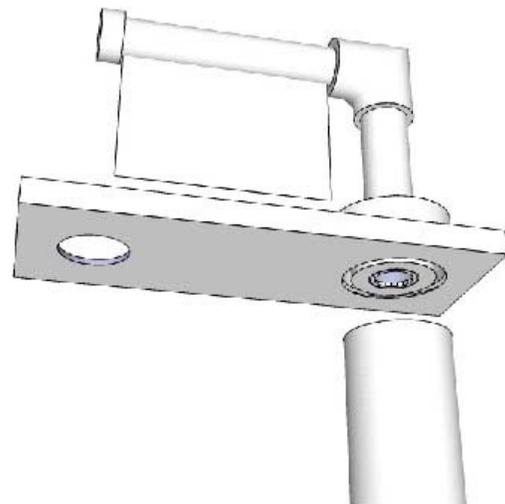
Installation Options:



Included 1" pipe extender can be cemented and hard piped to your water pump or display overflow



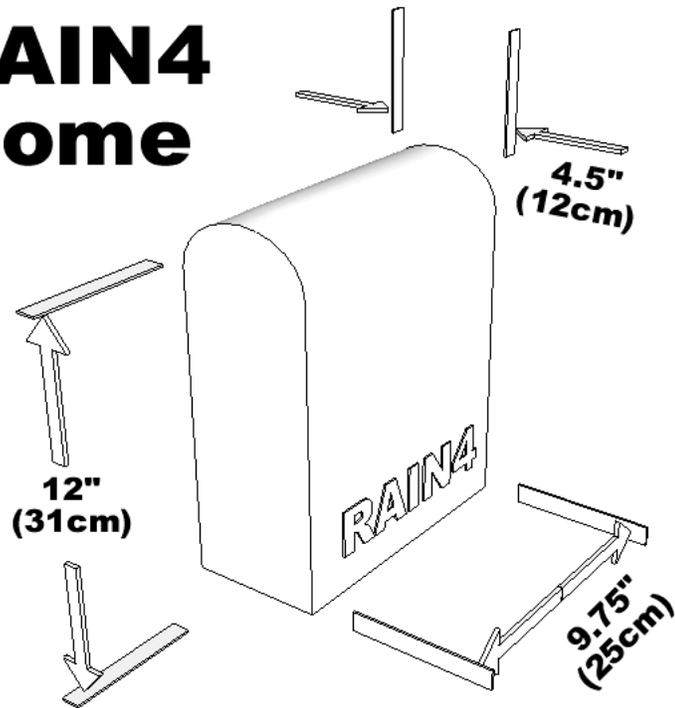
Included 3/4" barb adapter can be cemented and connected with flexible hose to your water pump or display overflow



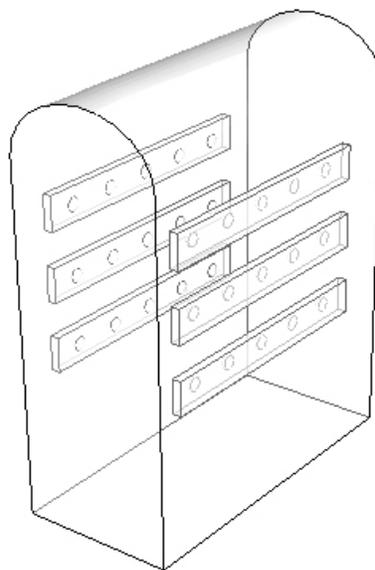
Standard 2" schedule 40 pvc pipe (not included) can be used to support and feed water to the scrubber from your water pump or display overflow. Is friction (push) fit only and does not need cement

All features and options of the RAIN2 are also in the RAIN4

RAIN4 dome

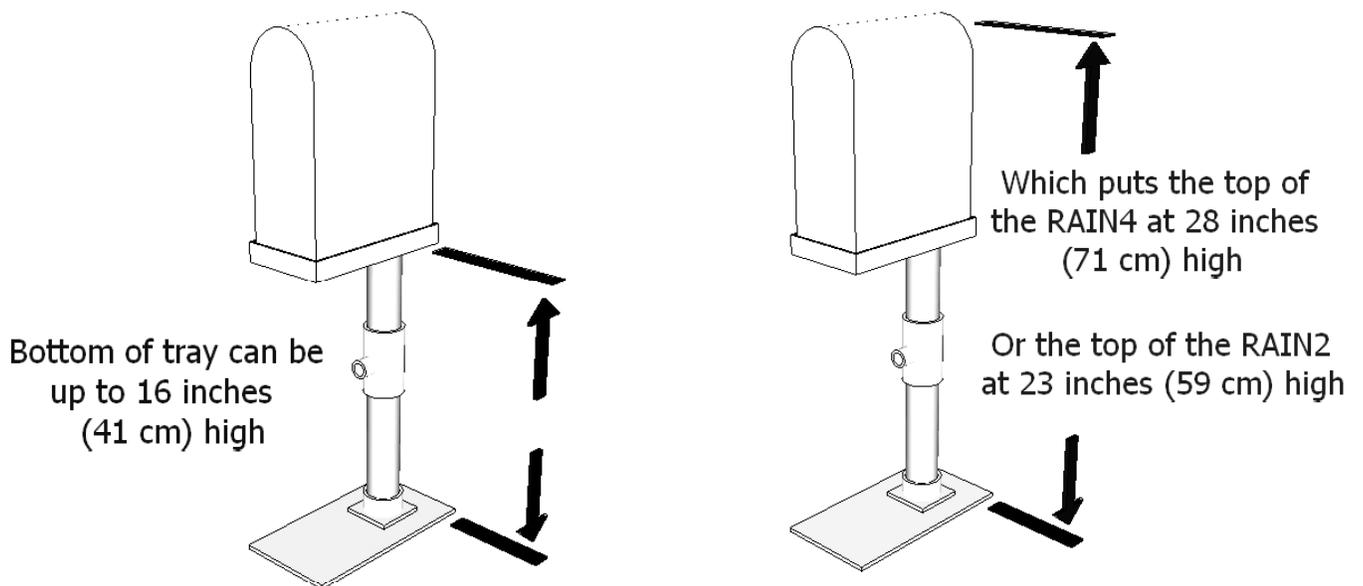
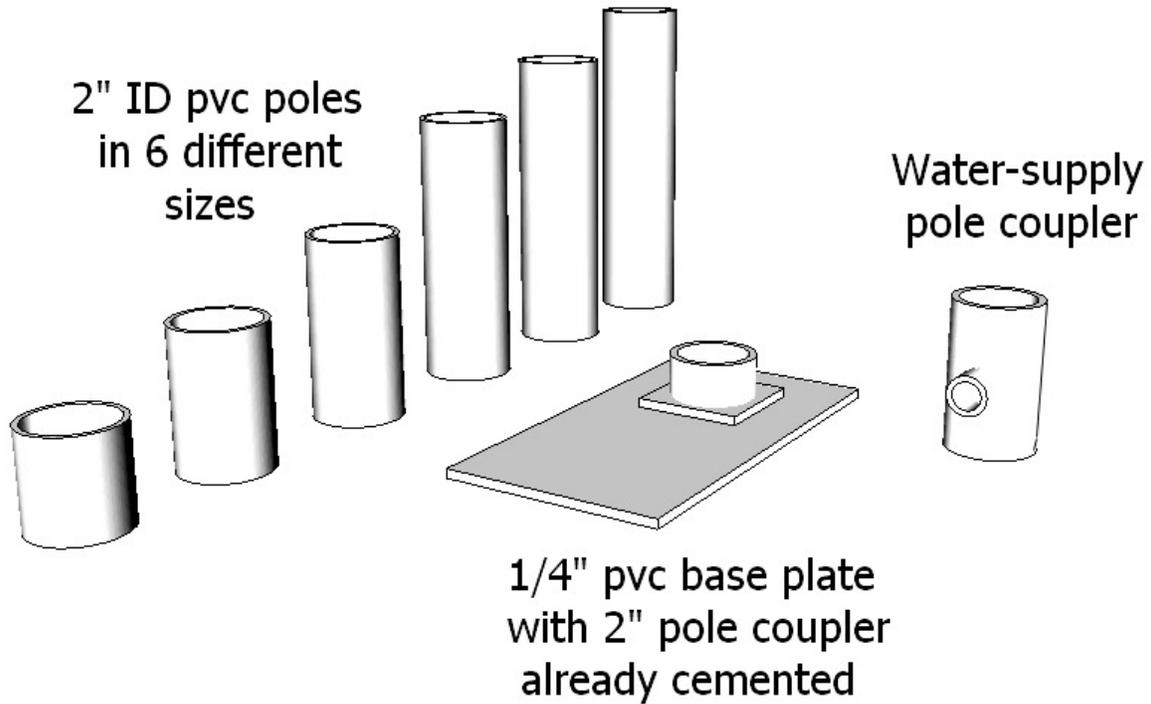


RAIN4 lights

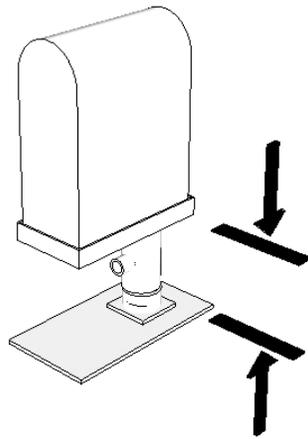


Included with RAIN4, and optional for RAIN2

What the pole mount includes

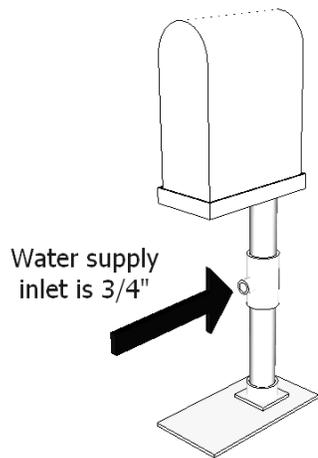
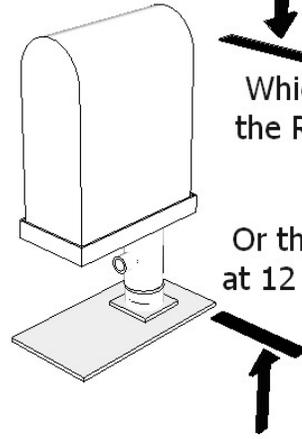


Bottom of tray can be as low as 7 inches (18 cm) high by using the short poles

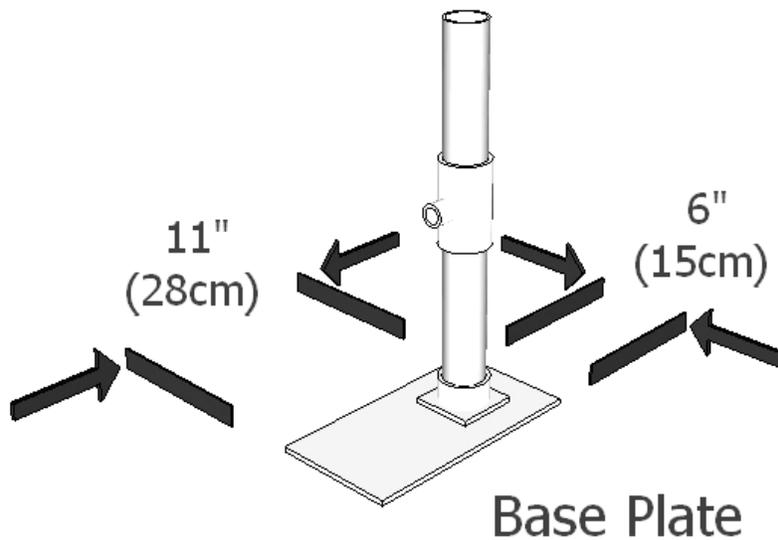
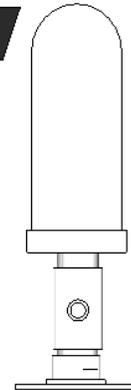


Which puts the top of the RAIN4 at 19 inches (48 cm) high

Or the top of the RAIN2 at 12 inches (31 cm) high



Only needs 2 inches (5 cm) of vertical head room to remove dome lid



Thank you for your purchase of this Santa Monica Filtration® RAIN™ waterfall algae scrubber with GEM5® lights and Green Grabber® growth attachment screen. We invented the waterfall algae scrubber ATS in the year 2008, and this RAIN version is the first new waterfall version available from anyone since then. This device will do most of the filtering needed for your saltwater aquarium, and in most cases it will do all the filtering, if it is the proper size for your amount of feeding that you do and the amount of rock that you have. Part of this filtering includes helping eliminate two very important things that drive most aquarium owners crazy: Algae and waterchanges. The filter works by growing algae inside the filter, and these algae consume all the “bad” things out of the water*. This is how all the oceans, and all the lakes, are naturally filtered.

The **RAIN2 with two GEM** lights has 24 square inches of 2-sided growth surface and is designed to be the only filter on an aquarium that is fed up to 2 frozen cube per day, or 20 pinches of flake food per day, or 20 square inches (120 sq cm) of nori seaweed per day, or 0.2 dry ounce (5.6 grams) of pellet food per day. Each 50 pounds (23 kg) of phosphate-soaked nuisance algae problem rock counts for an additional 1 cube a day. This level of light of 2 GEM5 lights works well when nutrients in saltwater are average. Up to two more GEM5 lights can be added at any time by using silicone adhesive. Always start with just 1 light plugged in however, until the screen has some color of growth.

The **RAIN2 with four GEM** lights has 24 square inches of 2-sided growth surface and is designed to be the only filter on an aquarium that is fed up to 2 frozen cubes per day, or 20 pinches of flake food per day, or 20 square inches (120 sq cm) of nori seaweed per day, or 0.2 dry ounce (5.6 grams) of pellet food per day. Each 50 pounds (23 kg) of phosphate-soaked nuisance algae problem rock counts for an additional 1 cube a day. The high level of light of 4 GEM5 lights works well when nutrients in saltwater are high. Always start with just 1 light plugged in however, until the screen has some color of growth.

The **RAIN4 with six GEM** lights has 48 square inches of 2-sided growth surface and is designed to be the only filter on an aquarium that is fed up to 4 frozen cubes per day, or 40 pinches of flake food per day, or 40 square inches (240 sq cm) of nori seaweed per day, or 0.4 dry ounce (11.2 grams) of pellet food per day. Each 50 pounds (23 kg) of phosphate-soaked nuisance algae problem rock counts for an additional 1 cube a day. The high level of light of 6 GEM5 lights works well when nutrients in saltwater are high. Always start with just 1 light plugged in however, until the screen has some color of growth.

The amount of water in the aquarium, or the dimensions of the aquarium, are not important. If you feed more than the above amounts, you can use additional RAIN filters (or our SURF, HOG or DROP filters) to add up to the amount that you are feeding, and then clean one of them at a time on a rotating schedule (one per week, etc). If you feed much less than these amounts, and the aquarium is very small, then it will still work but you just need to find a place where the filter will fit. It's not possible to over-scrub; it just won't grow as much, which is what you want (a filter that only filters when needed).

Note that if you have rocks which are soaked with phosphate from having been in a nuisance algae problem aquarium, **each 50 pounds (23 kg) of problem rock will add 1 cube a day to your feeding amounts** because this phosphate starts coming out of the rocks, so be sure to account for this when choosing a scrubber size. For example if you feed 1 cube a day, but have 100 pounds of rock that came from an old tank with nuisance algae problems, this rock will add 2 cubes a day to your feeding, meaning that you would need a scrubber for 3 cubes a day. This applies even if the rock was dried out and bleached, because this does not remove nutrients from the rock.

Head Room: If you are installing the RAIN in a sump or cabinet area with limited space, and you are not using a pole mount, the **RAIN2 will need 4" (10cm) above the top** of the light-cover dome lid in order to remove the

lid off of the tray. However using a pole mount you can lift the whole tray up with as little as 2" (5cm) of head room and then remove the light-cover dome lid from the tray. The basic **RAIN2 model does not come with a pole mount**, so you will need to make one or get the optional pole mount, or set the RAIN2 on a shelf. The **RAIN4 comes with the complete pre-built pole mount set** and thus requires just 2" (5cm) of head room above the top of the light-cover dome lid.

Filter Location: This RAIN waterfall ATS algae scrubber is for sumps only, but can be placed where other waterfall scrubbers never could be. Since the GEM5 lights are completely waterproof and submersible, the tray can be placed as near to your sump water surface as you like, including slightly underwater if needed for crowded areas. The fit of the pipe into the tray is not water tight because it is expected that any water falling from the tray will just fall onto the sump water surface below. Other than that, it does not matter where the filter is placed; it will operate the same. Most important is to place it where you can get to it, and remove it, easily. The height of the RAIN in your sump should be determined by how high the water surface is below it, and how much head room there is above it, that you will need to remove the dome lid from the tray or to remove the whole unit from your sump. The RAIN2, if set on a shelf, should probably be in a section of the sump with the highest water level, so that water draining out of the tray will not fall too far. Much preferred however is to make or use the optional pole mount. **Our pole mount is optional for the RAIN2, and is included with the RAIN4.**

Pole Mount: The pole mount (which fits both the RAIN2 and RAIN4) includes 6 pole segments of different lengths, and when combined with the water-supply pole coupler, allows the bottom of the RAIN tray to sit as low as 7 inches (17 cm) from the bottom of your sump, to as high as 16 inches (41 cm) from the bottom of your sump, and all heights between, in one-inch increments. This allows the bottom of the RAIN tray to be positioned exactly at your sump water surface level so that there is no falling water at all, and no drain pipe is needed. Also, since the pole mount pieces do not require cementing, you can adjust the height of the RAIN at any time by swapping out the lengths of pole mount pipe (don't throw unused lengths away). This is very handy when you add or remove other items from your sump, or when you decide to change your sump water level height. The RAIN will be angled slightly downwards, because of the removable fit of the pole mount pieces, but if you want the RAIN to sit level you can cement the pole mount pieces into place once you have the exact height determined.

Water Supply WITHOUT Pole Mount: For the **RAIN2** (or RAIN4 if you decide to not use the included pole mount) you can use flexible 3/4" (18mm) water supply tubing connected to the included gray barb adapter. You can also hard-pipe by using the included 1" white pipe extender (do not cement anything to the tray itself), and you can also use both the pipe extender and the barb adapter together (see drawings for these parts). It might be possible to loosely attach the barb adapter without cement; this would allow the barb adapter to be twisted off for quick removal from the tray. If you do cement into the standard 1" inside-diameter pipe (do not cement anything to the tray itself) then you will need to twist the water supply tubing off of the barbs to remove the tray, or cut a slot into your shelf so that the tubing can slide out from it. Deciding to cement or not depends on your installation and your skill. It is not mandatory that the tray be easily removable (other waterfall scrubbers are not), but it does make for much easier cleaning. If cementing, it's recommended to leave a small gap between the adapter and the tray so that if you want to change it later you can just saw the adapter off and replace the 1" vertical water pipe.

Water Supply WITH Pole Mount: For the RAIN4 which includes the pole mount, or the RAIN2 if you get the optional pole mount, the 2" diameter pole supports the whole filter, is very sturdy, and **supplies water too**; this is the recommended mounting and water supply method. Because the coupler on the top of the tray is designed for a loose fit onto the 2" diameter pole mount, you do not need to cement it (and do not cement anything to the tray itself). This allows you to change the position of the tray by rotating it on the pole mount. You can use

flexible ¾" (18mm) water supply tubing connected to the included gray barb adapter, and push the barb adapter into the side of the water-supply pole coupler. To hard-pipe to the pole mount instead, just run ¾" schedule 40 pipe to the ¾" inlet of the water-supply pole coupler (see drawing). The water-supply pole coupler is a standard Schedule 40 version 2 x 2 x ¾" reducing T fitting.

Pole Mount Tightness: The tightness of the RAIN tray fitting onto the pole mount is adjustable, and can vary from a very loose fit where the tray can freely spin around on the pole and be lifted up with just a finger, to a very tight fit where you have to push the tray down to get it onto the pole and where you have to grip the pole with one hand and lift the tray with the other hand to get the tray off. A loose fit might be preferred if you need to rotate the tray in order to get it out of the way of other equipment in your sump, or if you want to be able to lift the tray with one hand. A tight fit might be preferred if you want the tray to stay in position and not move in your sump, or if you won't be removing the tray at all. The upflowing water is not strong enough to push the tray up, even with a very loose fit, and will not spray upwards at all when you remove the tray.

To make the tray more loose, just rotating the tray around several times on the pole might be enough. After several rotations the fit will loosen up. If this is not loose enough, then use 180 grit sandpaper on the pole, inside and outside, and then use air or water to wash off the plastic particles from pole and the slot. Replace the tray onto the pole and rotate the tray around several times again. Repeat the sanding, washing and rotating until the fit is what you want.

To make the tray a tighter fit, you can make cuts into the inside and outside of the pipe with a strong knife; this will make pieces of plastic stick out, which will make a tighter fit in the tray slot. If this is not tight enough, you can melt some deeper lines into the pipe with a soldering iron.

Water Pump: The RAIN2 and RAIN4 **require at least 200 gph** (760 lph) water flow 24 hours a day, although 300 gph (1135 lph) might be better to fill up all areas of the screen. If a dedicated pump is used, then the height ("head") of the filter will require the pump to pump up to that level and still supply enough water. Generally, a 400 gph (1500 lph) pump with an adjustable output is more than enough in most cases. If the output of the pump is not adjustable, you can control it by pinching the water hose with something or tying a knot in the tubing. Water can also be taken from your return pump; in this case a T fitting from your return would go through a valve and then to the RAIN. The water can also be fed from your display overflow; any type of overflow system (Herbie, Durso, etc) will work. The RAIN2 and RAIN4 can handle 300 gph (1135 lph) continuously, and 400 gph (1515 lph) intermittently.

Sound: You can reduce the sound of the RAIN by reducing water flow, or by lowering the tray to just above (or just below) the sump water level. If set up properly, it will be completely silent and the only thing you will hear is your water pump. And if you have a silent DC pump, then the only thing you might hear is nothing. The RAIN2 and RAIN4 are the only waterfall scrubbers that allow you to place them safely at sump water level, because there is no dangerous 240/120 line voltage going into the lights, and there is no metal or electronics to be damaged by water, especially saltwater.

Power Outages: If you commonly have power outages, other waterfall scrubbers will dry out after a few hours, but you can prepare for and prevent drying out with your RAIN scrubber. Just place it low enough in your sump (even slightly underwater if needed) so that when the power goes out the water level in the sump will rise up high enough to keep the screen under water. The GEM5 lights will not be harmed at all because they are designed for underwater usage. With the screen submerged like this, the growth can last for several days with no flow or light.

Lights: The **RAIN2** comes with either 2 or 4 of our GEM5 lights. The **RAIN4** comes with 6 of our GEM5 lights: 2 of the lights are on one power supply, and 4 of the lights are on another, and 2 more lights can be added at any time with silicone adhesive. **When the screen is new, only one light should be plugged in** at the top, so that the screen does not get too much light. As the screen grows you can plug in a second light on the same side of the screen at the bottom. If you have more lights, when the growth fills in all the screen holes you can plug in all the lights and leave them that way. Generally, lighter colored growth (such as with new tanks) needs less lights plugged in, and darker or black growth (such as with old problem algae tanks) needs more lights plugged in. Once the growth pattern becomes stable, you won't need to change the lights anymore. And because the lights have plugs, there are no dimmer controls or electronics to malfunction, corrode, or fail. And they are easily controlled by a controller too. Just make sure to **start with just one light plugged in**, so there won't be too much light to begin with.

To add additional lights, clean well with water and alcohol, use a small blob of silicone adhesive at each end of the light, and let dry overnight. Do not put glue on the middle sections of the light (where the Santa Monica logo is) because this should be kept open for air to circulate behind the light. Small marks have already been made inside the dome lid where the additional lights can be placed.

Light Timer: The GEM5 lights can be put on a timer so that they stay on for part of the day, and off for the rest of the day, to improve growth and filtering. If the lights stay on for 24 hours, the filter may not filter as well in saltwater because it might get too much light and thus might not grow as much algae as it could (algae need some time in darkness); however you can try 24 hours of light (no timer) to begin with because sometimes it does work with very high measured nutrients in the water. A good starting point for a timer, however, is 18 hours per day for your first week. Make sure to WATCH the lights turn off when they are supposed to, especially if using an aquarium controller; there have been several cases of timers or controllers NOT turning the light off when programmed to do so. If your water does not have very high nutrients, then leaving the lights on 24 hours will probably not grow much at all; so start at 18 hours. A bald or white spot ("growth ring") in the middle of the screen is not bad, and means you need less hours of light, or just more days of growth to fill in; thick growth (or black growth) in the middle means you can add more hours, up to 24 hours per day. Eventually you will find the overall best number of hours for your feeding amounts.

Drain Pipe: Although a drain pipe on the tray is not needed, you can add one by using a standard 1" drain bulkhead which fits standard 1" Schedule 40 pvc pipe. The drain hole in the tray is 1 3/4" (44 mm) diameter. Even if you don't need a drain pipe, you still might want one to minimize or eliminate all red light which escapes down through the drain hole. Simply installing a standard black bulkhead by itself, which is about 2" long, greatly reduces red light coming out of the drain hole because there will be almost no direct line-of-sight pathway for red light to get out of the bottom. Adding a small length of black pipe, especially with a 45 degree turn, will stop all light. The inside of bulkheads and pipes are smooth and will reflect some light through them when new, but after they are coated inside with some growth, this will stop. You could also rough up the inside of the pipe with sandpaper to stop all reflections. RAIN scrubbers are the only waterfall scrubbers that can block out 100% of light from escaping.

Top Air Vent Hole: When operating normally, the water flow inside the RAIN keeps the inside of the RAIN from getting too warm from the lights. However when you remove the dome lid and set it on your floor, there is no more water flow inside it; so the top of the dome lid has a small hole to let warm air out. Best practice is to turn the lights off before setting the dome on your floor, or lay the dome down sideways on your floor, so warm air can get out.

Filter Cleaning: The RAIN screen can be cleaned when the algae growth gets thick, which is usually every 7 to 10 days. If the growth is not thick by 10 days, let it go to 14 days before cleaning, but not more. Newer filters,

especially on newer tanks, usually have to run more days than older filters do before thick algae grows, depending on your nutrients levels. Just check the Green Grabber screen every few days to make sure the water is still flowing evenly down most of it. Also, if you are using the filter on a brand new tank that you have not started feeding yet, there will be very little growth at all until you start feeding. The filter should remain in low-power mode (only one GEM5 light plugged in at the top) on these new tanks until feeding starts. Cleaning can be done by removing just the screen (by removing the red cap), or by removing the screen and pipe together, or by removing the entire tray.

You can clean the RAIN in the traditional ATS way (a process we developed in the year 2008) by turning the water flow off and removing the screen from the water pipe: pull the red end cap off of the water pipe and slide the screen out of the pipe. Take the screen to your sink and use a toothbrush or flat plastic scraper tool (like a credit card) to brush or scrape algae off of the screen so that you can see the white of the screen again. Any remaining growth on the screen should be green, not brown or black (leave some green in the screen holes but get all the brown and black out of the holes). Use a toothbrush or a large stiff brush or get dark and black growth out. Clean the slot in the water pipe too, with a toothbrush inside and outside, then slide the screen back in and put the red cap back on. Do not let the screen dry out; if you can't put it back into operation within ten minutes, then set it in some water in your sink or a bucket to keep it wet so the algae on it won't die. The algae can live for several days in just water, with no light or flow, but it can't dry out. **Don't flatten the screen down while scraping it; this might bend the hanging tabs.** Instead hold the screen up with one hand while you clean with your other hand, as the picture shows.

A more thorough cleaning can be easily done because the RAIN allows you to remove the tray and screen together; this is especially useful when large amounts of growth have accumulated on the tray (this is good!). Since the tray and screen stay together, thick algae growth is not torn apart when you take it to the sink the way it is when you pull the screen away from the tray. So just lift the tray and pipe/screen up together and take to your sink; if the RAIN was pole mounted (recommended), you can leave the water supply running in your sump if you like. While cleaning in your sink, after you have removed the screen from the slot in the pipe, use a toothbrush to clean the slot inside and out. Removing the red cap makes this easier because you can get inside the pipe. And of course you can brush the tray too. With other waterfall ATS scrubbers this total cleaning process can take 30 minutes, but the RAIN can be cleaned in just a few minutes.

If your RAIN is growing very thick green hair algae, you might be able to just pull the algae straight off the screen without taking anything apart (but do clean the slot so water continues to flow well). If this is the case, just remove the dome lid and try to pull off the algae. You can even swirl the algae around in your sump water to let pods jump out and feed the fish before you throw the algae away. Or you can feed some of the algae to your animals directly. By feeding your animals from your RAIN filter instead of from packages, your animals get very fresh live growth, and no additional nutrients are added to your water. This RAIN feeding process simply takes nutrients from your aquarium water and converts (grows) them into food, so that they can be put back into your animals. It's very much like growing your own food in a garden. Generally, the more you can feed your animals from your RAIN instead of from packages, the "cleaner" your aquarium will be because the nitrate, phosphate etc. that were accumulating in your water are now growing food to feed your animals. The extreme version of this type of feeding is to just place the entire screen in your aquarium for a while once or twice a week for the animals to eat. If you choose the proper size, type, and number of herbivore animals, you will never need to buy food again. The algae can also be used for fertilizer, pet food, baths, and skin beauty wraps.

Power Supply: Do not put the power supply box in the water, or get any water or salt spray on it, or keep it in a humid place like the bottom of an enclosed sump. The RAIN2 uses 27 watts of power from the wall when all four of the GEM5 lights are plugged in (20 watts for the lights, and 7 watts for the power supply). It

uses 21 watts if three lights are plugged in (15 watts for the lights, and 6 watts for the power supply); and 15 watts if two lights are plugged in (10 watts for the lights, and 5 watts for the power supply). The RAIN4 uses 42 watts of power from the wall when all four of the GEM5 lights are plugged in (30 watts for the lights, and 12 watts for the two power supplies). It is a low voltage that is perfectly safe. The power supply has a CE, UL, and Canadian UL rating, and works on both 120 or 220 volts; the power supply converts the 120 or 220 volts down to the safe low voltage which is isolated from the aquarium and from the wall mains; this means that even if you cut one of the GEM5 lights in half and put the light into the water, nothing would happen. The power cord plug is for 120V (USA), so if you need to plug into a different type of outlet you can just swap the “figure-8” laptop computer type cord with a laptop cord from your country, or you can get a plug (available at any hardware, electronics, or home improvement store, or online) and cut the plug off and attach your own. No transformer is needed. The power supply does get warm, so place it where it can get air (don’t put things on top of it). To allow it to run the coolest, you can mount the power supply to a vertical wall, preferably outside of a sump cabinet, so dry air can flow up from under it: use double-sided tape or just hang it with its wire. Also, it is recommended that you use a GFCI / RCD safety plug, available at any aquarium, hardware, electrical or home improvement store, or online.

Bulb Replacement: The LEDs inside the GEM5 lights do not need replacing, however the adhesive on the ends of old GEM5 lights can be cut out, and new GEM5 lights siliconed in, if needed.

Troubleshooting:

Lights have stopped working: If the little blue or green indicator light is on the power supply box, the red GEM lights should be on. Each power supply box has 4 plugs for 4 GEM lights and all should be able to work at the same time. Sometimes people will drop the black power supply box on a hard floor and this will bend some of the components inside, causing the red GEM lights to go out. This can sometimes be fixed by tapping the power supply on a hard wood surface such as a desk, on all the sides of the power supply. Try harder each time, on different sides, until the GEM red lights come back on. Also, sometimes water gets inside the power supply box from drips, sprays, or condensation from a humid place. This can be solved by setting the power supply in warm sunlight for several hours, or on top of a warm surface (like your aquarium lights) for several days. If none of the above works, contact us for a solution.

Water is only flowing on part of the screen: Usually a brand new screen will do this, especially if the flow is high, but it will fill in by itself as growth starts to fill in the slot.

Screen stays paper white: If the Green Grabber screen stays completely white after 10 days, with no spots of any color growth at all anywhere on it, and if your tank is new, then you probably just don’t have enough nutrients in the water compared to how bright the LEDs are. Plug **only one** of the GEM lights in at the top of the screen until growth starts, no matter how long it takes. **If the growth can’t grow with one GEM light, it can’t grow with more GEM lights.**

Only a light-brown growth occurs, even though your aquarium is full of algae: In this case you have an algae scrubber already in your aquarium; it’s on your rocks, and it is competing with your RAIN scrubber filter. Reduce the number of hours of light on your aquarium; this will weaken the aquarium algae on the rocks, and will give the photosynthesis (filtering) advantage to your RAIN. Your RAIN will need all lights plugged in for this (but only after it has started growing), and up to a full 22 hours per day of LED operation. Possibly even 24 hours. But there must be growth on the screen first; **if you use too much red light before there is growth on the screen, no growth will occur** at all because the light is too bright for growth. This situation is the most difficult to deal with, so for more exact advice, post your details on AlgaeScrubber.Net

Screen stays spotted white/black: If even after 4 weeks of cleanings, the screen is almost completely white but **has patches of black**, and if you have very high nitrate and phosphate in the water, then what probably is happening is that very dark algae is growing (high nitrate and phosphate cause dark growth) and this growth is letting go and flowing away, leaving bare white spots. If this is the case, there will be bits and pieces of dark algae on some parts of the Green Grabber screen, giving a white/black spotted look. Dark and black algae do not attach as well as green hair algae does, so it lets go. Do this: 1) Reduce the flow of water so the algae is not washed away, 2) Increase light to 24 hours (no timer) to grow more green algae in the high nutrients, and of course make sure all GEM5 lights are plugged in. If you don't have all 4 lights in a RAIN2, consider adding more. Clean the RAIN as soon as any black growth occurs, by taking the screen out of the pipe and using a toothbrush in your sink with running water (green hair algae cannot attach to the screen if there is dark or black slime; the cleaned white screen will also help reflect more light back to the algae).

Another possible reason for black and white areas is that pods (tiny animals) are eating the algae faster than it can grow; in this case the white areas will be more circular. If you can see any pods (tiny shrimp) moving around on the screen, then this might be the case. Run the screen under freshwater for a few minutes to remove the pods. Cleaning the screen more often will help too. Fish love to eat pods, so feed some to them if you can.

Only black "oily" algae grows: This is caused by very high nitrate and phosphate in the water. Plug in all the GEM lights, and increase lighting to 24 (no timer). If you have less than four GEM lights on a RAIN2, consider getting more so you have the full set of four lights. Black oily growth needs as much light as possible. And frequent cleaning too, as often as every three days, and never longer than a week. The good news is that this growth has the most nutrients in it of any kind of growth, so it is indeed removing a lot of nutrients from the water. But it must be cleaned often or it will let go and flow away, leaving spotted black/white areas on the screen as described above.

Algae On Rocks Increases: If after running your RAIN scrubber (or any algae scrubber) for several months you start seeing more (not less) algae growth on the rocks in your aquarium, what probably is happening is that phosphate is coming out of the rocks. As the phosphate comes out it gives algae more fuel at the surface of the rocks. This is good! This is usually the case when the phosphate in the water measures "zero", and the algae that is starting to grow on the rocks is green, long, and concentrated in certain spots; usually near the top of the aquarium and on sharp rock edges and points. Another indicator will be that there will be no algae growing on clean (no coralline) plastic or glass, even if these parts are up at the top, because plastic and glass do not accumulate phosphate. The rock algae will increase for a while, and when the phosphate in the rock is used up, the rock algae will start turning yellow and letting go, sometimes in large chunks which get caught in pumps. The time for all this to happen can be from two to nine months, depending on how much phosphate was in the rocks, how many scrubbers you have, and how many other filters you have.

*** Water Changes:** If you have been doing water changes to reduce nitrate, phosphate, or nuisance algae, then an algae scrubber filter will greatly reduce the need for them and may possibly eliminate them. When algae grow in the filter, they consume nitrate, nitrite, phosphate, ammonia/ammonium, metals, CO₂, and some toxins; so it's just a matter of growing enough algae inside the filter to do the filtering you need, compared to how many nutrients you are putting into the tank with the food you feed (that is why the RAIN filter is sized for a certain amount of feeding per day). However, this filter (and algae in general) do not supply calcium, alkalinity, magnesium or strontium. So if you wish to reduce or eliminate water changes, you will need to supplement any calcium, alkalinity, magnesium or strontium that you were depending on water changes for. Freshwater aquariums, which may only need alkalinity (hardness) to be maintained, may get enough alkalinity from just doing evaporation top-offs with tap water from your sink.

Dimensions: The **RAIN2** tray and dome lid unit, without a pole mount, is 10 inches long (25cm), 5 inches wide (12.5cm), and 8” tall (20cm). If you set the RAIN2 on a shelf, it requires 4 inches (10cm) of open headroom space above the RAIN2 in order to remove the dome lid off of the tray. If you prefer to slide the entire RAIN unit out of your sump sideways off the shelf, then it requires no open headroom space above it. If you mount the **RAIN2 or RAIN4** on a pole mount, it requires 2 inches (5cm) of open headroom space above it so you can lift the tray up off of the pole. The power cord is 10’ (3 m) from the plug to the filter.

Warranty: This RAIN scrubber (except screen) comes with a 1 year warranty. The Green Grabber screen comes with a 6 month warranty. Warranty is for replacement or repair only; not a refund. Costs for shipping back to us are not covered, however we will pay for shipping back to you. In either case, you will need to ship the entire filter back to us before we can ship a replacement.

Warranty is limited to repair or replacement, and does not cover fish loss, personal injury, property loss, or direct, incidental or consequential damage arising from the use of it. The warranty and remedies set forth above are exclusive and in lieu of all others, whether oral or written, express or implied. We specifically disclaim any and all implied warranties, including but not limited to lost profits, downtime, goodwill, damage to or replacement of other equipment and property, and any costs of recovering animals, plants, tanks or other aquarium related items and/or equipment. We are not responsible for special, incidental, or consequential damages resulting from any breach of warranty, or replacement of equipment or property, or any costs of recovering or reproducing any equipment, animals or plants used or grown with this product.