



maintenance and troubleshooting

tales from the FIELD

A couple years back, we got a call from a customer whose pond we'd installed in the spring of that same year. When she called it was mid-summer, and she thought she might have a leak. I had time, and her house was close by, so I jumped into the truck to check it out.

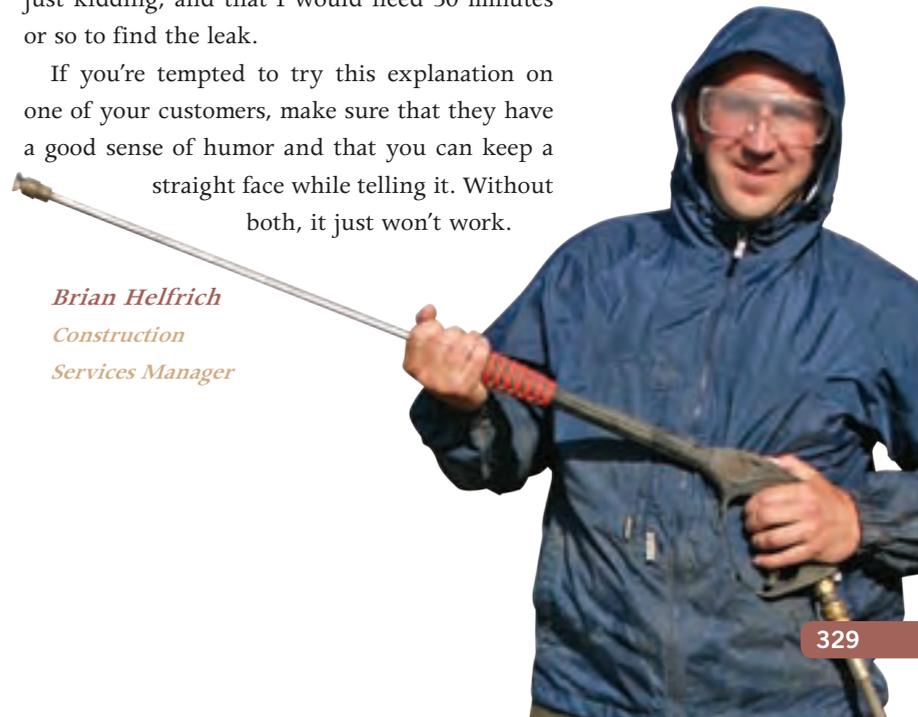
My Fish Are Drinking My Pond?

I asked her a number of questions to figure out exactly what was going on in her pond. After listening to her answers, I thought for a minute and said (with a straight face), "You know ma'am, it's been really hot lately, and your fish have gotten really thirsty. I think they're just drinking the water in your pond."

The woman listened to my analysis of the situation, thought it over and said, "Oh really? I didn't realize that fish would actually get thirsty." At that point, my straight-faced delivery broke into a chuckle, and I confessed that I was just kidding, and that I would need 30 minutes or so to find the leak.

If you're tempted to try this explanation on one of your customers, make sure that they have a good sense of humor and that you can keep a straight face while telling it. Without both, it just won't work.

Brian Helfrich
Construction
Services Manager





Remember, working with Mother Nature is not only easier, it looks nicer too!



Algae Control

Each pond ecosystem possesses its own qualities, conditions, and characteristics, as do ponds in nature. All of Aquascape's ponds have some algae because algae is natural, and is part of an ecosystem, just like everything else in the pond. The key, however, is to find the balance that Mother Nature intended, and algae will stay under control. Managing the pond ecosystem in a way that's logical and consistent with Mother Nature is a technique that's proven very successful for us.

There are two orientations, or philosophies, of algae control... synthetic and naturalistic.

The Synthetic Orientation

We are all well aware of the popular UV sterilizer and chemical treatment methods of algae control. These methods will clear up the green, pea-soup looking water. Yes, you read correctly—UV sterilizers and chemicals will kill suspended algae. However, the debate does not end there.

For starters, UV sterilizers kill a variety of things in the pond, including microorganisms, that are highly benefi-

cial to the ecosystem. They will only kill floating algae, however, since string algae will never pass through the sterilizer.

Chemicals, on the other hand, can be detrimental to the pond system over time. After the algae gets “naked” by chemical treatments, it falls to the bottom and disintegrates. In this disintegration process, all of the previously stored nutrients that the algae possessed are released back into the system, feeding the next algae bloom. So, a cycle is created that often becomes bigger and bigger the more you treat it, creating a vicious circle of chemical dependency.

Both your client and their water garden become dependent upon these artificial killers, which cost anywhere from hundreds to thousands of dollars, not including operating costs. Time, effort, and money are also wasted on changing UV bulbs and sterilizers, purchasing chemicals, and so on. Meanwhile, the time needed for pond maintenance slowly intrudes on the time for relaxation and pond enjoyment.



Mother Nature's Prescription for Algae Control:

The Naturalistic Orientation

(Embrace It)

Don't underestimate the power of Mother Nature. She has the simplest solution that suggests algae problems are most likely the result of an unbalanced ecosystem. That being the case, the imbalance problem can easily be resolved by creating balance. In order to understand this, one needs only to understand that a water garden is an ecosystem of interrelated elements which all play an equally important role in its function.

The Parts of This Ecosystem Include:

- A good, solid, and reliable circulation system including pump and connective pipes.
- Mechanical (skimmer) and biological (BIOFALLS® filter) filtration.
- Aquatic plants.
- Fish.
- Rocks and gravel.

Together these elements work to maintain a natural ecosystem without over-filtering or radiating anything in the pond. Here's how it all works:

Circulation System:

The purpose of the circulation system is to pump water from the pond, into the skimmer, back to the BIOFALLS® filter, and deposit the water back into the stream and pond. The three most important things here are to...

- Choose the pump that's most appropriate for the particular job.
- Use the right size of PVC piping.
- Connect all these elements together so the system works efficiently.

The Filtration System:

Designing and implementing an efficient circulation system ensures that pond debris (including leaves, mosquito larvae, floating algae, and anything else that's blown in) will be swept from the pond's surface and deposited into an easily emptied skimmer basket, and that the water is oxygenated. Through various forms of mechanical and biological filtration, the aquatic circle of life turns infinitely over and over again.

Plants:

Algae is a plant, and all aquatic plants feed off of the same nutrients in the water. The more other plants present in the pond, the more the algae will be starved from its food source. Algae growth will be minimized naturally, and effortlessly.

Fish:

Fish fulfill their role in the ecosystem by eating algae. Presuming they're not overfed, koi over 10" in length will graze on the algae, effectively reducing its growth.



Rocks, Gravel, & Bacteria:

Like aquatic plants, the bacteria that live on the rocks and gravel in the pond feed on excess nutrients in the water. The rocks and gravel not only hide the liner and create a natural-looking setting, but also provide a home for beneficial bacteria. Any plant debris, fish waste, decaying organic matter, excess nutrients, or anything else that falls to the bottom of the pond will rest on top of the rocks and gravel. The bacteria living on the rocks and gravel will then go to work, breaking down the waste and debris, cleaning and clearing the water. Mother Nature's circle of life is amazing, don't you agree?



Be Patient!!

It takes between two and six weeks for the bacteria to colonize and actually begin to do their job. Creating a balanced ecosystem doesn't happen overnight! Like fine wine, ponds mature with age, so don't be surprised or concerned if a new pond begins to grow some algae. Once the plants, fish, and bacteria are established, the water quality will improve, and the amount of maintenance on the pond will be reduced.

Yearly Pond Cycle

Most ponds undergo an algae cycle every year. In colder climates, both the plants and the bacteria will go dormant due to the cold water, creating advantageous conditions for algae growth. Without competition, the algae takes full advantage of the available nutrients in the pond. Do not be discouraged if the pond turns to pea-soup, or is full of string algae during the winter. When the warmer temperatures return and stabilize, and the plants and bacteria establish themselves once again, the ecosystem will become balanced and the water quality will improve. Some ponds take longer than others to achieve this balance.

Five elements for a healthy pond ecosystem:

1. Proper pump and plumbing
2. Mechanical (skimmer) and biological filters (BIOFALLS® filter)
3. Aquatic plants
4. Aquatic animals
5. Rocks and gravel

If the pond ecosystem contains all of these five elements in the right proportions, the result will be a naturally balanced, crystal clear ecosystem, just as nature designed it, and all without artificial means. By letting Mother Nature do the work, the pond maintenance time will be minimal when compared to the time spent relaxing next to a beautiful, crystal clear, natural-looking pond.

Top Water Quality Control Methods

The first and most important step to achieving good water quality is the regular addition of bacteria. Bacteria should be added regularly throughout the season, typically 1-4 times per month. Regular addition of the bacteria will help keep consistent water quality, and a healthy supply of bacteria on the rocks and gravel to help break down debris on the bottom of the pond.

Algae Control

The best line of defense against filamentous, or “string,” algae in Aquascape's arsenal of water treatments is EcoSystems™ EcoBlast™. EcoBlast™



works on contact and has very quick results. The product is simply sprinkled over areas that have algae, making it very easy to apply and spot treat the troubled areas of the pond, stream, or waterfalls.

Other Methods

Don't Overfeed the Fish

This is very common among homeowners. Fish are not human, and they do not need three meals per day. Fish should only be fed what they can eat within a few minutes. Fish food that is not eaten will add more nutrients to the pond and feed the algae. Even when all of the food is consumed, it's eventually excreted back into the pond system as fish waste. Any way you look at it, overfeeding fish will promote algae growth. When you're fighting algae, fish feeding should be reduced or eliminated until

the algae is under control. This will also force the fish to consume algae.

Don't Overstock the Pond With Fish

The reasoning for this is simple: The waste fish excrete adds nutrients to the pond, increasing the food source for algae.

Clean the BIOFALLS® Filter No More Than Once a Year

The BIOFALLS® filter houses bacteria just as rocks and gravel do. The debris and sediment that build up in the BIOFALLS® filter is natural, and washing it out, especially with chlorinated tap water, will greatly reduce the amount of bacteria in the ecosystem. Aquascape's Signature Series™ line of BIOFALLS® filters do come with an optional drain kit that allows the filter to be back flushed. This great feature allows the removal of a significant amount of debris and sediment build-up in the filter, without negatively impacting the bacteria levels in the filter. The drain kit also makes it extremely easy and less of a mess to clean the Signature Series™ BIOFALLS® filter during the annual spring clean-out. All of the sediment and debris can be “flushed” away out the back of the filter.

Plants

Since they directly compete with algae for nutrients, plants are the most important addition to the pond. Using a wide variety of plants will not only add to the natural look of the pond, but will reduce algae growth as well. Here are some suggestions to think about when landscaping a pond.

- Place water hyacinths or water lettuce in the BIOFALLS® filter. These plants reproduce quickly, act as very good filters, and help disguise the BIOFALLS® filter. Tie a fishing

line or prop a bamboo stick across the front of the BIOFALLS® filter to prevent the plants from spilling into the stream.

- Use plenty of bog and marginal plants, such as cattails and iris for help with filtration. They are hardy plants that will begin growing early each spring to help balance the pond.
- Cover the pond surface with water lilies. The floating pads will help to block sunlight and stop it from reaching into the depths of the pond. Sunlight is a major factor in algae growth, so the fewer the rays, the less the algae growth.

- Don't overlook oxygenators! They soak up nutrients and sunlight directly through their leaves like sponges, starving out algae.

For more information on aquatic plants and their effect on a pond, see chapter 3 and 18.

Physical Removal

This is the quickest way to combat algae, even though it's the most labor-intensive. Physically remove clumps of string algae from the rocks by cutting it with scissors or a knife. Since algae reproduces by fragmentation, pulling it away from the rock will leave pieces in the water that will develop into full strands.

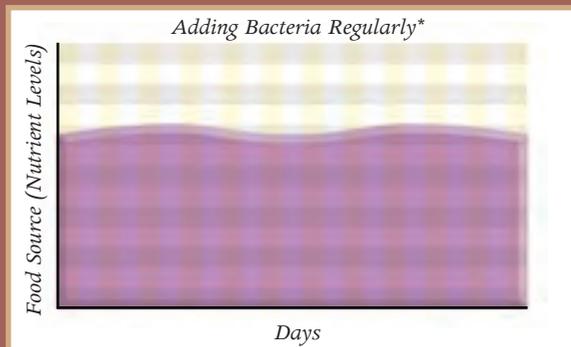
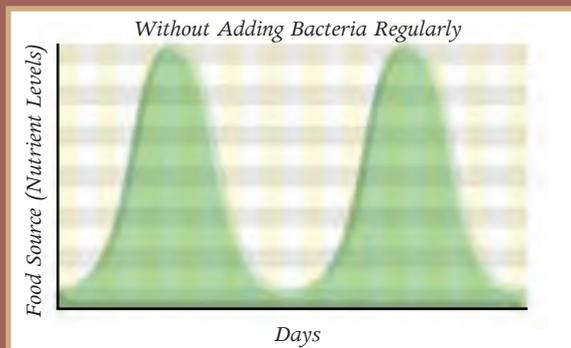
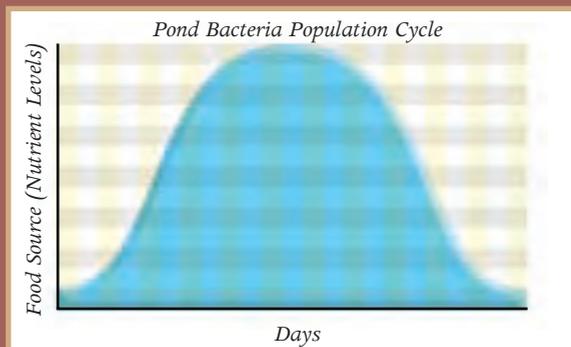


Place water hyacinths or water lettuce in the BIOFALLS® filter. These plants reproduce quickly, act as very good filters, and help disguise the BIOFALLS® filter. Tie a fishing line or prop a bamboo stick across the front of the BIOFALLS® filter to prevent the plants from spilling into the stream.



It's a Bacterial Life

Below are graphs showing how the bacteria works in cycles. For optimum results, a high and steady level of bacteria colonization should be maintained, this will help control nutrient levels. As the quantity of available nutrients are used by plants and bacteria, the amount of bacteria decreases along with it. Regular bacteria additions (one every other week) are required to maintain a sufficient level. See the graphs below:



(*Regular addition of bacteria reduces and maintains nutrient levels and helps keep water clear.)

Koi

Adding koi over 10" in length will greatly reduce string algae. If they are not overfed, they will graze directly on the string algae.

Fix Leaks

Constantly adding tap water to make up for a loss of pond water, also means the constant addition of nutrients. This will eventually promote algae growth, so leaks should be fixed as soon as they're noticed.

Control Run-Off

Control the amount of run-off water that enters the pond. Never use lawn fertilizer or insecticides on trees around a pond, or in areas that will potentially drain towards the pond. These fertilizers will feed algae growth and may threaten the aquatic life in the pond.

Remove Debris

Keep the pond free of debris. An excess of decaying debris will add to the nutrient levels and the algae in the pond.

Some string algae is good. It looks like moss under the water.



Winterization Q & A

Does every pond need preparation for winter?

No, not all ponds need winter preparation. Climate is a big factor when determining whether a pond has a real need for such seasonal maintenance. Debris cleanup from the fall may be inevitable in any part of the country, but only ponds that experience ice cover over long periods of time will require winterization.



When should you offer winterization to your customers?

Your winter preps should be started after the trees have ceased dropping their leaves in the late fall. Properly winterizing ponds at this time of year will make it easier for your crew to perform annual clean-outs the following spring.

Make Some Extra Money, Keep in Touch with Customers!

Each fall and spring, to educate our pond installation customers about winter pond preparations, we send them a newsletter. The newsletter helps us keep in touch with our customers by letting them know what's new, events and helpful hints. It also educates them, reducing the number of questions that we get, saving us time.

For a readable view of our newsletter, check out www.aquascapeinc.com.



What should I do for ponds with heavy tree cover?

Since the skimmer won't catch all of the surface debris, you may have to use a net to remove the leaves and organics left in the pond during the fall.

Debris left to rot in the pond will eventually decompose, producing gases that can be harmful to the fish. Physically removing the leaves and sticks from the pond will make the spring clean-out easier, and may even save the life of a few dormant fish.



What about the plants?

Cutting back plant material in the fall will prevent organic debris from decomposing in the water over the winter. Hardy bog and marginal plants should have all of the dead leaves and foliage trimmed down just above water level, and hardy lily leaves and stems should be cut back, leaving approximately 2 - 3" at the base of the plant. Tropical plants can be brought inside for winter, or treated as annuals and replaced each season.

(See chapter 3 for more information on aquatic plants.)



TIP from TEAM AQUASCAPE

Ponds positioned under a lot of trees may require more maintenance during the fall, when the trees lose the majority of their leaves. Instruct your customer to check the skimmer debris net frequently during this time of the year, to ensure that the system functions properly.





Can I leave my customer's system running throughout the winter?

Maintenance is usually the determining factor in whether or not a pond owner keeps their pump running in the winter. The primary maintenance responsibility at this time is to make sure there is enough water for the pump(s) to operate properly.

During the winter months, the usual water supply options are now unavailable. Outdoor water spigots and automatic water fill valves are turned off during the winter months to prevent pipes from freezing and cracking. Therefore, pond owners who run their systems during the winter will have to find an alternate water source to replenish their pond. Water can be supplied via a hose run from inside the house or multiple trips with a five-gallon bucket. Generally speaking, it's not uncommon to have to go out once

or twice a month during the winter to "top-off" the pond.

Won't the waterfalls freeze solid?

Pump size is important when determining a waterfall's ability to operate during the winter. A pump that provides at least 2,000 gph can be operated throughout the winter without a problem, as long as it runs con-

tinuously. Moving water will usually keep a hole open in the ice around the waterfalls and in front of the skimmer. However, repeated days in sub-zero temperatures may lead to excessive ice build-up and can cause the skimmer to run dry. If the flow of water through the skimmer is unable to keep up with the pump because of ice build-up, it may be necessary to shut the system down. The system can be run again once the ice is melted and normal water flow is restored to the skimmer. *(Note: If the pump is turned off during a heavy freeze, be sure to remove the check valve so the water drains from the pipe and BIOFALLS® filter. Otherwise, the remaining water will freeze solid, and although this won't hurt the pipe, ice may remain into spring, preventing the start up of the pond in the early spring.)*





Warning: Slow-Moving Streams

There is nothing more breathtaking than a waterfall covered with ice formations and snow during the winter. You must, however, be careful with ponds that have long or slow-moving streams. In such cases, ice dams can form and divert water over the liner.

Will the filters and pipes crack?

Our filters have been put through extreme Chicago winters for 10 years now. They are designed to bow and bend with the freezing and thawing effects of winter. The PVC flex pipe is reinforced and is crack resistant. If you decide to keep the pump running all winter long, there will still be a constant flow of water traveling through the pipe, and the moving water will not freeze. If you decide to turn the system off for the winter, most of the water in the pipe will drain back into the pond when the pump and check valve are removed.



What should I do with the pump once I shut down the pond?

Remove the pump from the skimmer and store it in a frost-free location, ideally submerged in a bucket of water. The water around the pump housing will prevent the seals on the pump from drying and cracking.





What about the biological filter?

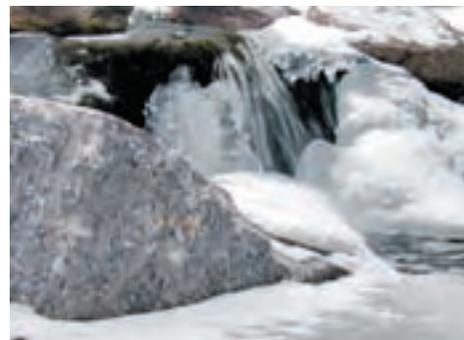
When preparing the pond for winter, remove the filter mats and bags of biological media from the BIOFALLS® filter. Rinse them down and store them in the garage or shed. If left over the winter, all the filtration media in the BIOFALLS® filter may freeze into a solid block causing unnecessary delays during the spring clean-out.

What about the fish, will they be okay?

Your homeowner's fish will do just fine in 2' of water, as long as some form of oxygenation is provided, and a hole is kept in the ice to allow the

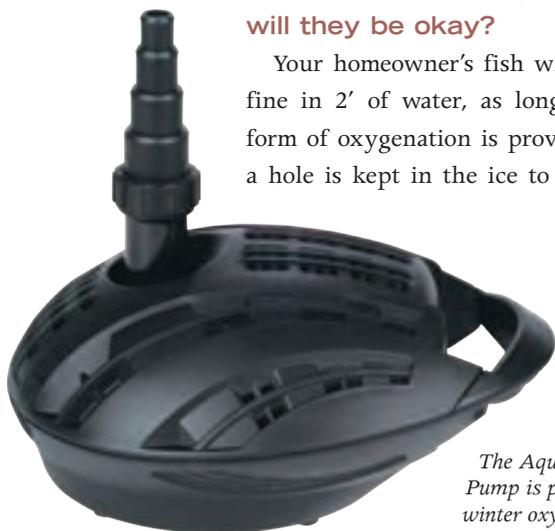
escape of harmful gases in the water. We recommend using an AquaForce™ pump to keep a hole open in the ice. Place the pump on the second or third shelf of the pond so the surface water is broken from the aeration. The agitation from the pump will prevent freezing and provide oxygen.

The other option for your homeowner is to use a floating heater in combination with a small submersible pump (at least 150 gph). You can place the AquaForce™ pump on the first shelf of the pond, bubbling at least 1" above the surface. Floating heaters are the most common method of keeping a hole open in the ice. Unfortunately they won't provide oxygen for the fish and some are fairly expensive to operate (1,250 watts or more). Do not confuse a floating pond de-icer with a water heater. This product won't heat the water, it will simply keep a small hole open in the ice. Be sure to place the heater away from the skimmer and re-circulating pump to avoid moving the heated water and causing the heater to run constantly.



The Bottom Line

The bottom line for winterization is maintenance. Roughly 70 percent of our clients decide to shut down their pond system because they don't enjoy tending to their water garden during the bitter months of the winter. The aesthetic rewards of the winter pond are worthwhile, so urge your customers to keep their falls running as long as they can. Shutting down your customer's ponds and waterfalls is certainly an option, but be sure to follow our precautionary measures to preserve fish, plant, and pump life.



The AquaForce™ Pump is perfect for winter oxygenation.





TIP from TEAM AQUASCAPE

To extend the life of the pump, we suggest clearing the impeller shaft free of any debris before winter storage. It is also beneficial to spin the impeller a couple of turns by hand before turning the pump on in the spring. This will prevent any corrosion or debris from seizing the impeller and interrupting proper pump function.

Spring Cleanouts

Why do my customers need a spring clean-out?

Replenishing the water in your customer's pond each year allows their pond to begin a fresh new season. Since the balanced ecosystem keeps the pond healthy the rest of the year, an annual clean-out gets it off to the right start. Spring algae blooms occur because of excess amounts of nutrients and lack of beneficial bacteria. By performing a clean-out, you'll replace the nutrient-rich water with clean water that is ready for bacteria to colonize. Cleaning a pond in spring simulates the normal flushing action that lakes fed by streams and rivers experience during heavy spring rains.

Will all of my customers actually need a spring clean-out?

Every pond is different, and some ponds do not require an annual clean-out. Ponds larger than 2,000 square feet might only need a clean-out every few

years. Larger ponds may never need a complete clean-out, because any impurities present are minimal compared to the volume of water in the pond. The larger the pond, the easier it is to maintain (just like a fish tank). You can tell whether the pond needs a spring clean-out by simply looking at the pond. If it looks the same in March as it did last June, it's probably okay to let it go.

What about ponds in the southern states?

Obviously, ponds located in the warmer climates of the country won't experience a winter quite like those in colder climates. Warm climate ponds will sustain bacterial life year-round, and may not require a full pond clean-out but could benefit from a partial clean-out. Spraying down the filter mats and lava rocks, and doing a 20 percent water change each year will prove to be beneficial for the entire ecosystem.

Make good money during your off-season.

During Chicagoland's cold and rainy month of March, we're still unable to tap into the ground and build ponds, so

AquaScape™ Spring Cleanout Request Form

901 Aquasland Way
St. Charles, IL 60174
ph 630.659.2000
fax 630.659.2101
www.aquascapeinc.com

To facilitate better service, we would like you to mail or fax in your cleanout request.

(Name) _____ (Home Phone) _____ (Business/Cell Phone) _____
(Street Address, City) _____
(SPECIAL INSTRUCTIONS) _____

We will be on vacation some time between March or April. Please do not schedule between: _____

1 NEED ANY SUPPLIES?

- AquaClearer™ Extreme Cold Water (Liq.) 16 oz. -18.74 71 oz. -37.49 1 Gal. -104.99
- AquaClearer™ Extreme (Liq.) 16 oz. -18.74 71 oz. -37.49 1 Gal. -104.99
- AquaClearer™ Extreme (Dry) 4.6 oz. -14.99 1.2 lbs. -33.74 1 Gal. -104.99
- BIOFALLS™ Filter Mats (set of 3) Mini -55.08 Standard -102.33 Grande -196.83
- Bilty Bales™ Mini Kit -26.24 Standard Kit -49.86 Grande -196.83
- EcoBlast™ 8.8 oz. -14.99 18 lbs. -127.49 7 lbs. -52.49
- EcoCarbon™ (Activated Carbon) 9 lbs. -59.99 23 oz. -22.49
- EcoFloc™ (Flocculant) 8 oz. -7.79 25 count -7.49 100 count -14.99
- EcoStarter™ (Dechlorinator) 8 oz. -11.24 20 watt -9.17 50 watt -17.05
- EcoTabs™ (Plant Fertilizer) 25 count -7.49 2L -11.99 4L -20.99
- Light Bulb Replacement 8.8 oz. -22.48 2L -11.99 4L -20.99
- Koi Balance™ Premium (Fish Food) 8.8 oz. -22.48 2L -11.99 4L -20.99
- S.A.B.™ Extreme 8.8 oz. -22.48 2L -11.99 4L -20.99
- Signature Series™ Skimmer Basket Basket -65.61 Skimmer Mat -18.39
- Skimmer Filter Mat (Signature Series™) Basket -65.61 Skimmer Mat -18.39
- Skimmer Net Standard -18.36 Large -22.30 Grande -30.17
- I Also Need _____

2 A regular cleanout is approximately \$200 to \$350. This cost will vary if your pond is large or hasn't been cleaned in a long time. Each pond is billed a \$65 service charge plus \$50/man hour.

LAST YEAR MY POND CLEANOUT COST \$ _____ PLUS the cost of PRODUCTS.

I was happy with my cleanout last year. Do not exceed \$ _____

Please clean my pond this year. Do not exceed \$ _____

Thank you, but I do not wish to have AquaScape clean my pond this year.

3 I'VE ENCLOSED CREDIT CARD NUMBER TO CONFIRM MY REQUEST

VISA MasterCard Discover American Express

Number: _____ Exp. Date: _____

we split our guys into crews of two, and each performs six to eight pond clean-outs each day.

We charge \$85 for the service call and \$65 per manhour once we're there. The average pond (200 square feet or so with a 6 to 10' stream) takes us around three manhours to clean (1½ hours for 2 guys), so we charge approximately \$300 to \$450 for the average size pond clean-out. Larger or dirtier ponds require more time to clean, so that's why we charge by the hour. We're able to perform hundreds of clean-outs dur-



ing a time of year when pond construction would be virtually impossible.

Organize your spring clean-out program!

Notify your customers of your clean-out program and prices six weeks prior to beginning clean-outs.

Send a final notice postcard three weeks before clean-outs begin, so everyone knows they have to schedule a visit now in order to get on your schedule.

Call the customers who are scheduled for a clean-out, one week in advance to have the outside water and electrical turned on for use.

Ponds Done Right, Customers Served Right

Maintenance programs are one of the best ways to strengthen your business and customer base. There are many different ways to set up a maintenance program, and how involved you become is really up to you. You may just offer your services for spring clean-outs and fall shutdowns, or perhaps you go all the way and offer weekly maintenance if you have clients who are willing to pay for it. The bottom line, there is money to be made with pond maintenance programs.

The main thing that the maintenance department at Aquascape focuses on is customer service. You want to keep the customer happy because a happy customer means that they will keep coming back for product or service needs on their pond. By providing excellent customer service, your clients will tell others who might have a pond or may be interested in getting a pond, and create an opportunity for new business.

At Aquascape, we believe that your #1 customer is your past customer. Performing on-site maintenance calls helps you stay in front of your customers, giving you the opportunity to

make more money. When you go to their house for a maintenance service, you can get that face-time and while telling them what they need in terms of water treatment products. This also gives you the opportunity to tell them about new and upgraded products for their pond, or to offer the suggestion of having another stream running down from this side of the yard or how to make the pond bigger because their fish are getting to big for the size pond they have now. It's called up-selling and is best done when you are face-to-face with the customer.

Spring clean-outs and fall shutdowns are excellent services to provide to your customers. For Aquascape, Inc., spring clean-outs give us the opportunity to get the crew busy and make money in the off months before actual pond building can start... not to mention another chance to stay in front of your customers.

When it starts getting cold, your customers have to start thinking about whether they want to leave their stream running for the winter or shut it down. This gives you the opportunity to offer your services to shut it down or even watch over it during the winter months while it stays running – yet another chance to stay in front of your customers and make money while doing so.

If you have enough customers that need some sort of a maintenance service on a regular basis, adding a full-

901 Aquascape Way
St. Charles, IL 60114
ph 630.659.2000
fax 630.659.2101
www.aquascapeinc.com

Aquascope™

Water Garden Maintenance Check

THE _____ RESIDENCE AT _____
PHONE# (____) _____

Date: _____
Water Garden Service Person: _____
Last Service Date: _____

Weekly/Every other week

- Clean skimmer net.
- Clean skimmer filter pads (if needed).
- Check pump for proper flow.
- Check automatic fill valve for proper function
- Trim all pond and stream plants of dead leaves
- Replace any gravel or rock as needed.
- Add or remove any plants as needed.
- Apply bacteria or string algae buster as needed
- Double check water garden before leaving.
- Make a list of materials and tasks needed for
- Door hangers: Cover as many houses as possible

Comments: _____

Items needed for next service visit: _____

901 Aquascape Way
St. Charles, IL 60114
ph 630.659.2000
fax 630.659.2101
www.aquascapeinc.com

Aquascope™

Maintenance Package Contract

The _____ Residence At _____
Phone# _____

Pond Sq Ft.	Price:	Sq Ft.
Optimum	\$5/Sq Ft.	
Full Sun	\$6/Sq Ft.	
Full Shade	\$7/Sq Ft.	

Water Treatment Product	Price
0-176 Sq Ft.	\$150
177 Sq Ft.+	\$1/Sq Ft.

Biofalls Filter	Price	Qty.
Mini	\$125	
Standard	\$150	
Grande	\$200	
Bog	\$200	

Clean Sweep Skimmer Filter	Price	Qty.
Signature	\$0	
Classic Standard	\$100/Each	
Classic Large	\$100/Each	
Classic Grande	\$150/Each	
Pondless Basin	\$200	

Stream/Pondless Stream	Price	Qty.
0-10ft	\$200	
11-20ft	\$400	
21-30ft	\$600	
31-40ft	\$800	
41ft+		

Lights	Price
10 watt	\$20/each
20 watt	\$30/each
50 watt	\$40/each

Miscellaneous	Price

Total Price For Items	
Service Charge/Distance Fee (\$50 min)	
-Deductions (Auto Fill Valve)	
Grand Total	

901 Aquascape Way
St. Charles, IL 60114
ph 630.659.2000
fax 630.659.2101
www.aquascapeinc.com

Aquascope™

Water Garden Maintenance Contract For:

**THE Hayden, RESIDENCE AT 352 Deepwood Rd.,
PHONE# (847) 304-8682**

Aquascope Designs Inc. proposes to furnish all labor and materials necessary to maintain an ecologically balanced water garden. Aquascope's maintenance of our patented system, along with other biological systems is based on the principles of establishing a working ecosystem within your pond to keep it clean while reducing maintenance. The five essential parts for this to happen are: 1. Biological Filter 2. Mechanical Filter 3. Rocks and Gravel 4. Plants and Fish 5. Beneficial Bacteria.

The maintenance process will include: Clean skimmer net, clean skimmer filter mat (if needed), check pump for proper flow, check and adjust automatic water fill valve (if needed), trim and remove any dead plants and water lilies, trim and remove any debris, replace any gravel and rock as needed, add or remove plants as needed, apply bacteria or S.A.B. as needed. In the springtime we will perform a **spring cleanup** and in the fall a **fall shut-down**. The period for this maintenance contract is from **April to November of the current calendar year**. If you wish to have service during the winter months there would be a separate charge for that service.

Since all water gardens vary in different sizes, a cost will be estimated for service to your water garden. Newer water gardens usually require a bit more service, but as they mature the regular maintenance decreases. With seasonal string algae blooms, hotter days, colder temperature, predator damage, you may also need extra maintenance.

For all new equipment we install the following warranty and guarantee:
Aquascope Designs, Inc. honors all manufacturers warranties, from date of purchase, and guarantees its workman ship for one full year after installation.

Aquascope Designs, Inc. will also furnish all labor and materials for the service of the proposed project. The water garden size is approximately: **18' x 20' pond with two 40' streams**.

Service will be scheduled as soon as your account balance is brought up to date. Actual service dates are approximate due to variable conditions affecting our work schedule.

Your water garden maintenance cost: **\$ 2,500.00 per year**.

TERMS: All claims and payments must be made within the pay period. Late payments will be subject to an interest charge of 2% per month (24% per year). One full payment can be made or if you wish 3 payments throughout the season. One in or before March, the second in June and the third in September. NSF checks are subject to a \$30.00 service charge.

Company Representative

Client Signature

Printed Name

Printed Name

Date

Date

time maintenance employee is something that should be considered.

Aquascope Inc. made the decision to hire a full-time maintenance person and justified it by showing how not having the construction crew use Fridays to do maintenance, and instead building a pond, added up to being able to make a lot more money in the long run.

Having a full-time guy also allows for a faster response time when a customer calls with a problem. We are able to get a guy out there that same day, if not the next. Offering a few different maintenance packages for your customer's pond on a weekly or monthly basis is another opportunity to make use of a full-time employee.

There are a lot of customers that are interested in having their pond taken care of, so all they have to do is go and enjoy it.

All in all, having a maintenance program will be beneficial to your company. There are a lot of ponds being built and these ponds are going to need some kind of service.

CONSTRUCTION GUIDELINES

esp Diez Pasos Para Una Limpieza Exitosa

Ten Steps to a Successful Spring Clean-out



1 Begin draining the pond with a clean-out pump, or simply use the waterfall pump with chicken wire around it to prevent fish from being sucked into the impeller. Use flexible PVC pipe or a fire hose to discharge the water into the surrounding landscape, relocating the hose two or three times to allow ground seepage. If the

pond has fish, first use some of the pond water to fill a container that will temporarily house them. (*Note: Optional water fill valve should be turned off during the clean-out.*)

esp Comienza por sacar el agua del estanque con la bomba de agua para mantenimiento. También, si quieres, puedes usar la bomba de agua de la cascada usando una pequeña cerca hecha de alambre flexible como el que se usa para crecer plantas y flores en el jardín. Asegurate de rodear la bomba de agua con la mini cerca de alambre para prevenir que los peces sean succionados hacia la bomba. Use tubo flexible de PVC, o una manguera de fuego para descargar el agua al paisaje circundante, situando de nuevo la manguera dos or tres veces para permitir que esté absorbo en el suelo. Si el estanque tiene peces, primero use parte del agua del estanque para llenar un contenedor que temporalmente los albergará. (*Nota: Válvula opcional de agua debería ser apagada durante la limpieza.*)

2 Unplug the waterfall pump, and disconnect the check valve from the return line, allowing the pipe and BIOFALLS® filter to be drained. You are now ready to clean the BIOFALLS® filter, filter mats, and bags of lava rock. Simply hose these down until they're clean. (*Note: The filter mats are designed to last approximately three years. Replace the old*

filter pads if they begin to tear apart during handling.)

esp Quite la pompa de la cascada, y desconecte la válvula de chequeo de la línea de regreso, permitiendo que el tubo y el BIOFALLS® sean desagüados. Ud. ahora está listo para limpiar el BIOFALLS®, esteras de filtro, y las bolsas de piedra de lava. Simplemente riegue estos con una manguera hasta que esten limpios. (*Nota: Las esteras de filtro son diseñados para durar aproximadamente tres años. Reemplace las almohadillas viejas del filtro si ellos comienzan a despedarse durante el manejo.*)





3 Don't waste your time trying to catch the fish when the pond is full. Drain the pond until there is approximately 6" of water left, gently catch the fish and place them in a container of pond water off to the side. Be sure to use water from the pond to avoid shock from a rapid temperature change, and cover the container with a screen or net to prevent the fish from jumping out.

esp No malgaste su tiempo tratando de agarrar los peces cuando el estanque está lleno. Desagüe el estanque hasta que queden aproximadamente seis pulgadas de agua,



agarre los peces con cuidado y coloquelos en un contenedor lleno con agua del estanque. Asegurese en usar agua del estanque para evitar el golpe de un cambio rápido de temperatura, y cubra el contenedor con una red para prevenir que los peces salten fuera.

4 Remove any solid waste, such as leaves or twigs, by hand.

esp Quite cualquier desecho sólido, tal como hojas o ramitas, a mano.

5 A 1,500 psi pressure washer or a high-pressure nozzle on the hose is recommended for washing down the pond rocks. The jet spray should be within 6" of the rocks to successfully remove matted algae. Start at the top of the pond, and work your way down, while pumping out the dirty water that is collecting at the bottom. For an average size pond (11' x 16'), this should take around 15 minutes. Some algae on the rocks will prove

beneficial in developing your ecosystem, so avoid trying to scrub all the algae away.

esp Una arandela de presión de 1,500psi o una boca de presión alta en la manguera se recomiendan para lavar las piedras del estanque. El rocío del chorro debe estar dentro de seis pulgadas de las piedras para poder quitar exitosamente las algas enredadas. Comience a la cabeza del estanque, y trabaje su manera hacia abajo, mientras bombea fuera el agua sucia que se reúne en el fondo. Para un estanque mediano (11 por 16 pies de tamaño), esto debe tomar alrededor de 15 minutos. Algunas algas en las piedras probarán ser benéficos en el desarrollo de su ecosistema, así que evite tratar de escobillar todas las algas.

6 Rinsing down and removing debris from the rocks and gravel will be the most time consuming part of the clean-out. Use the water coming



CONSTRUCTION GUIDELINES



directly out of the garden hose to wash the gravel. A power washer is unnecessary and may actually be counterproductive at this point. The pump should still be running, and located at the lowest point of the pond so that sediment trapped in the gravel will be channeled to the deepest point and removed by the pump. Rinse the pond from top to bottom until the water begins to run clear. Meanwhile, check lights, reposition the loose boulders, and be sure the liner is hidden from sight (covered with gravel).

esp Enjuagando y removiendo escombros de las piedras y la grava será la parte más consumidora de la limpieza. Use el

agua que viene directamente fuera de la mangera de jardín para lavar la grava. Una arandela de poder es innecesaria y puede ser verdaderamente contraproducente en este punto. La pompa debería de estar corriendo todavía, y localizado en el punto más bajo de el estanque para que el sedimento que está atrapado en la grava sea canalizado al punto más profundo y removido por la pompa. Enjuague el estanque de arriba abajo hasta que el agua comience a correr claro. Mientras tanto, checa las luces, reacomoda piedras que no esten en su lugar y cubre la capa protectora con grava para que no se vea.

7 Clean the skimmer box by pumping the water out and hosing it down. Also, make sure to clean out the net and hose down the filter pad.

esp Limpie la caja del skimmer bombeando el agua fuera regandolo con una mangera. Otra cosa, asegurese en limpiar la red y también regar la almohadilla de filtro.

8 Now that most of the algae is removed and the gravel is clear, remove the pump and begin filling the pond. Once the pond has 1' of water you can prepare to reintroduce the fish by transferring them to smaller buckets of old pond water and floating the buckets in the pond, allow-

ing them to acclimate to the new pond water temperature for approximately 15 minutes. If your customer is on city water, it's imperative that you add a dechlorinator to neutralize the chlorine in the water.

esp Ahora que la mayor parte de las algas han sido removidas y la grava fue quitado, remueva la pompa y comience a llenar el estanque. Una vez que el estanque tenga un pie





TIP from TEAM AQUASCAPE

Fish should not be left outside the pond in a holding container for more than a few hours, or in the full sun. Aeration may be necessary to support bigger fish being contained over longer periods of time.

esp No debe dejar los peces afuera del estanque en un contenedor más que unas pocas horas, ni en el pleno sol. Puede ser necesaria la aeración para sostener peces más grandes en contenedores por largos períodos de tiempo.

de agua, Ud. puede prepararse para re-introducir los peces transfiriéndolos a cubos más pequeños de agua vieja del estanque y flotando los cubos en el estanque, permitiéndoles aclimatare a la temperatura nueva del agua del estanque por aproximadamente 15 minutos. Si su cliente tiene agua activada de la ciudad, es imprescindible que Ud. agregue un dechlorinador para neutralizar el cloro en el agua.

9 Periodically begin introducing pond water into the fish buckets during the acclimation process. You're now ready to reintroduce the fish.



esp Periódicamente empiece a introducir agua de estanque en los cubos de pez durante el proceso de aclimatación. Ud. ahora está listo para re-introducir los peces.

10 If your client is not at home on the day you perform the pond clean-out, set the hose on a slow trickle when you leave, urging the homeowner to be home right after work to turn it off. The pond can also be filled by using the optional automatic water fill valve.

esp Si su cliente no está en casa el día que Ud. realizará la limpieza del estanque, abra la manguera para que salga un chorreo lento de agua antes de salir, sugiere al cliente que llegue a casa inmediatamente después del trabajo para cerrarla. También se puede llenar el estanque usando la válvula opcional para llenar automática.





esp Cómo Componer Goteos

Troubleshooting Leaks

It happens to the best of us. Even if you're a pond building pro and have installed dozens of ponds, you'll inevitably have a customer call to tell you, "I think I have a leak." Our first bit of advice after receiving this call...don't panic! Leaks are going to happen, and nine times out of ten, they're extremely easy to solve. That is, it's easy if



TIP from TEAM
AQUASCAPE

It's difficult to find a leak if the ground is wet from recent rainfall. Wait until dry weather to look.

you have a game plan that'll help you locate the leak.

esp Acontece al mejor de nosotros. Aunque usted sea una estanque que construye en pro de y ha instalado las docenas de estanques, usted tendrá inevitablemente una llamada de cliente para decirlo, pienso que tengo un escape. ¡Nuestro primer pedacito del consejo después que recibir esta llamada ... no se asusta! Los escapes acontecerán, y nueve intermedios de diez, ellos son extremadamente fáciles de resolver. Eso es, es fácil si usted tiene un plan del juego que ayudará le a localizar el escape.

Systems and Procedures

Aquascape's technical department often receives calls from puzzled, panicked, frustrated, and/or upset contractors who unfortunately have been

stricken with the dreaded leak situation. In their panic, they have taken it upon themselves to go out in a whirlwind, remove and replace sections of liner, dig up the plumbing, replace plumbing fittings, take apart and reseal the skimmer and BIOFALLS® filter faceplates, only to find they have failed to fix the leak. This is the "finding a needle in the haystack" approach. While it may, on occasion, solve the leak, it is by far the most labor-intensive approach to solving the problem.

esp Los sistemas y los Procedimientos

El departamento técnico de Aquascape a menudo recibe las llamadas de desconcertado, panicked, frustrado, y/o contratistas de contratamiento que han sido golpeados desgraciadamente con la situación temida de escape. En su pánico, ellos lo han tomado sobre sí mismos salir en un torbellino, quitar y reemplazar las secciones de transatlántico, desentierran la instalación de cañerías, reemplaza fittings de instalación de cañerías, desarma y reseal el skimmer y BIOFALLS® faceplates, sólo encontrar que ellos han fallado de fijar el escape. Esto es el "encontrar una aguja en el almirar" el enfoque. Mientras puede, en la ocasión, resuelve el escape, está por lejos las la mayoría de los enfoque intensivo de trabajos a resolver el problema.

1 Does the Pond Actually Have a Leak?

Often, the new pond owner doesn't realize how much water can evaporate from a pond during the dog days of summer.

- The midwestern states typically lose 1 - 1½" inches of water each week.
- Contractors down in the hot, arid southwest, such as Arizona, have reported evaporation levels in excess of 3" a week.

Remember, these are averages. Some ponds may not experience evaporation levels this high, while other ponds with large pumps pushing high volumes of water, and/or ponds designed with multiple waterfalls with a lot of cascades and splashing, may have evaporation rates much greater than these.

esp El estanque Tiene Verdaderamente UN Escape?

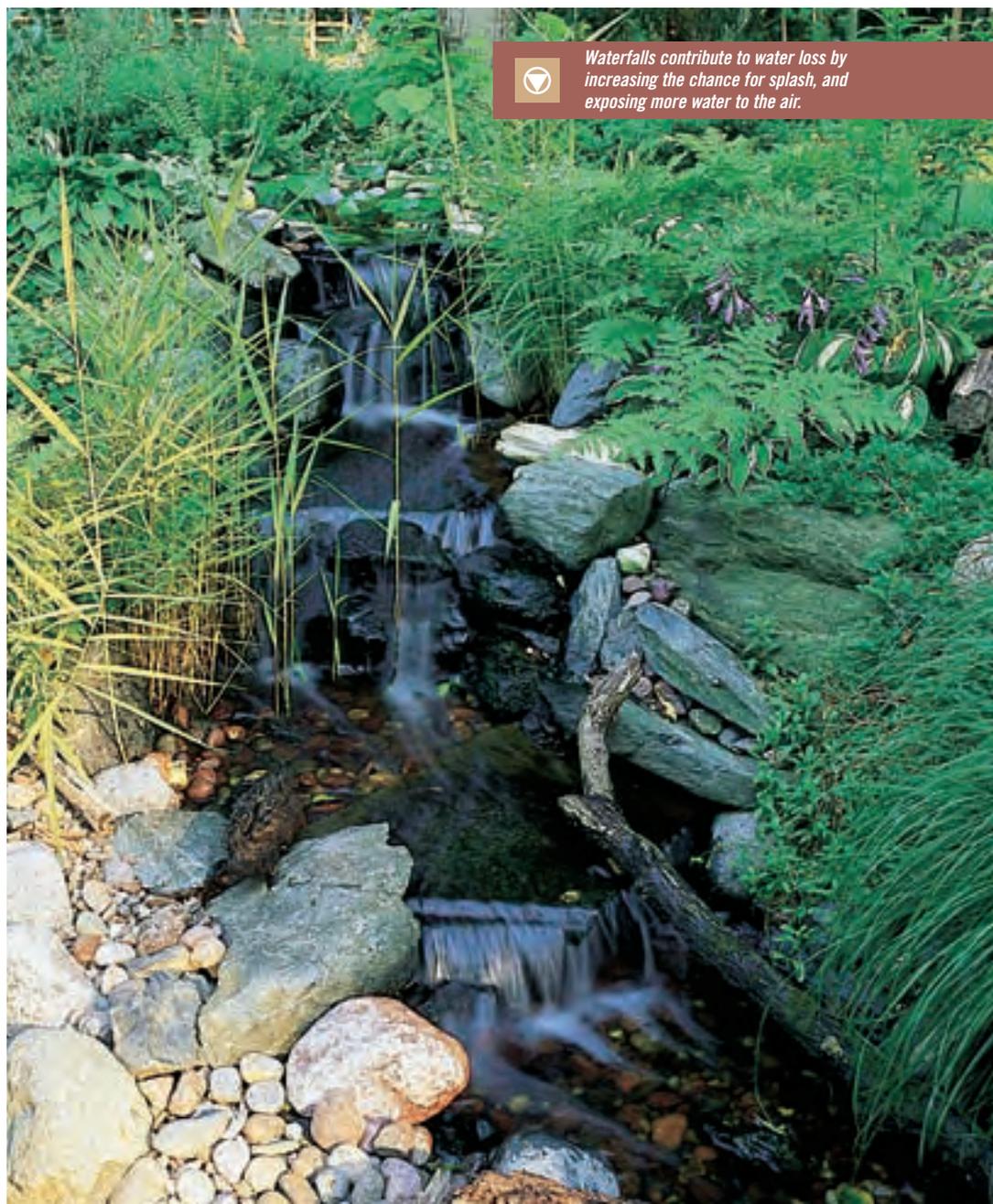
A menudo, el dueño nuevo de estanque no se da cuenta cuánto puede evaporar de una estanque durante los días calientes del verano.

- *Los estados del medioeste pierden típicamente 1 - 1½" pulgadas de agua cada semana.*
- *Contratistas hacia abajo en el suroeste caliente y árido, tal como Arizona, ha informado la evaporación los niveles en el exceso de 3" una semana.*

Recuerde, éstos son los promedios. Algunas estanques no pueden experimentar los niveles de la evaporación esto alto, mientras otras

estanques con pompas grandes los volúmenes altos que empujan de agua, y/o las estanques diseñaron con múltiples cataratas con muchas

cascadas y salpicar, pueden tener las tasas de la evaporación mucho más que éstos.



Waterfalls contribute to water loss by increasing the chance for splash, and exposing more water to the air.

CONSTRUCTION GUIDELINES

Troubleshooting Leaks cont...



2 Look for Low Edges

After you've talked to the pond owner and determined there is a leak, the next step is to visit the pond.

- Here's a little secret: 99% of all leaks are not due to a hole in the liner, but rather water making its way over the edges of the pond, stream, or waterfalls.
- Look for any low edges. Settling at the pond's edge is the most common cause of a leak, especially in a new pond.

- Typically, the low edges are found around the stream and waterfall where settling may have occurred after a few rainfalls. These areas are usually built up during the construction of the pond using the soil from the excavation, and are prone to some settling.
- Look for signs of a low edge.
- Look for wet mulch along the edge of the pond or stream.
- Look for wet gravel along the edge of the pond or stream.
- You may need to move back the gravel in certain areas to find the low edge.

esp Busca las Orillas Bajas

Después que usted ha hablado al dueño de el estanque y determinado hay un escape, el próximo paso deberá visitar el estanque.

- *Aquí está un secreto pequeño. 99% de todo se sale son no vencido a un hoyo en el transatlántico, pero en algo hacer de agua su manera sobre las orillas de el estanque, de la corriente, o de las cataratas.*
- *Busca cualquiera bajo bordea. Asentar en la orilla de estanque es la causa más común de un escape, especialmente en una estanque nueva.*

- *Típicamente, las orillas bajas se encuentran alrededor de la corriente y la catarata donde asentar puede haber ocurrido después unos pocas lluvias. Estas áreas son construidas generalmente durante la construcción de el estanque que usa la tierra de la excavación, y es propenso a algún asentar.*
- *Busca los signos de una orilla baja.*
- *Mojó pajote por la orilla de el estanque o la corriente.*
- *Mojó grava por la orilla de el estanque o la corriente.*
- *Usted puede necesitar retroceder el grava en ciertas áreas para encontrar la orilla baja.*



How to Fix a Low Edge

Low edges can be built back up by simply backfilling and compacting soil beneath the liner in order to raise the edge of the liner above the water level.

esp Cómo Fijar UNA Orilla Baja

Las orillas bajas se pueden construir retrocede por simplemente backfilling y tierra que comprimen abajo el transatlántico para levantar la orilla del transatlántico encima del nivel de agua.



3 Look for Obstructions in the Stream and Waterfalls

- Check to make sure nothing is causing the leak by restricting the flow of water down the waterfalls or stream. The pond owner may have adjusted some of the rocks in the waterfalls in order to improve the look of the falls, inadvertently causing some of the water to be diverted over the liner. We've actually had

customer's kids relocate rocks in the streams in order to create a battle-field for their army men.

- Water can also make its way over the edge due to excessive plant or algae growth in the stream or BIOFALLS® filter. The water simply gets backed up from all of the plant growth. Plants and algae should be maintained by trimming them back in order to let the water pass freely.
- All in all, these leaks are extremely easy to fix. You can save yourself some time down the road by spending a few extra minutes with new pond owners at the time of installation, teaching them how to identify and fix minor leaks such as these.

esp Busca Obstrucciones En La Corriente Y Cataratas

- *Check para no cerciorarse nada causa el escape restringiendo el flujo de agua abajo las cataratas o la corriente. El dueño de el estanque puede haber ajustado algunos de las piedras en las cataratas para mejorar la mirada de las caídas, por inadvertencia causar parte del agua para ser desviada sobre el transatlántico. Hemos tenido verdaderamente piedras de relocate de niños de cliente en las corrientes para crear un campo de batalla para sus hombres de ejército.*
- *Puede hacer también su manera sobre la orilla debido al crecimiento exce-*



sivo de la planta o algas en la corriente o BIOFALLS®. El agua vuelve simplemente arriba de todo el crecimiento de la planta. Las plantas y las algas deben ser mantenidas recortándolos apoyan para permitir el paso de agua libremente.

- *Con todo, estos escapes son extremadamente fáciles de fijar. Usted puede salvarse alguna vez hacia abajo el camino gastando unos pocos minutos extras con dueños nuevos de estanque en el tiempo de la instalación que enseñalos cómo identificar y fijar escapes secundarios tal como éstos.*

CONSTRUCTION GUIDELINES

Troubleshooting Leaks cont...

4 Shut Down the Pump

You've spent 15 minutes or so following the suggestions listed above and you still can't find the leak. What do you do next? Well, we now have to go one step further and try to narrow things down a little more.

- Turn off the pump and leave the pond for a period of 12 or more hours.
- Revisit the site after 12 hours, or ask the homeowner to call the next day and let you know if the water level has dropped.

esp Dé un paso 4: Cerró La Pompa

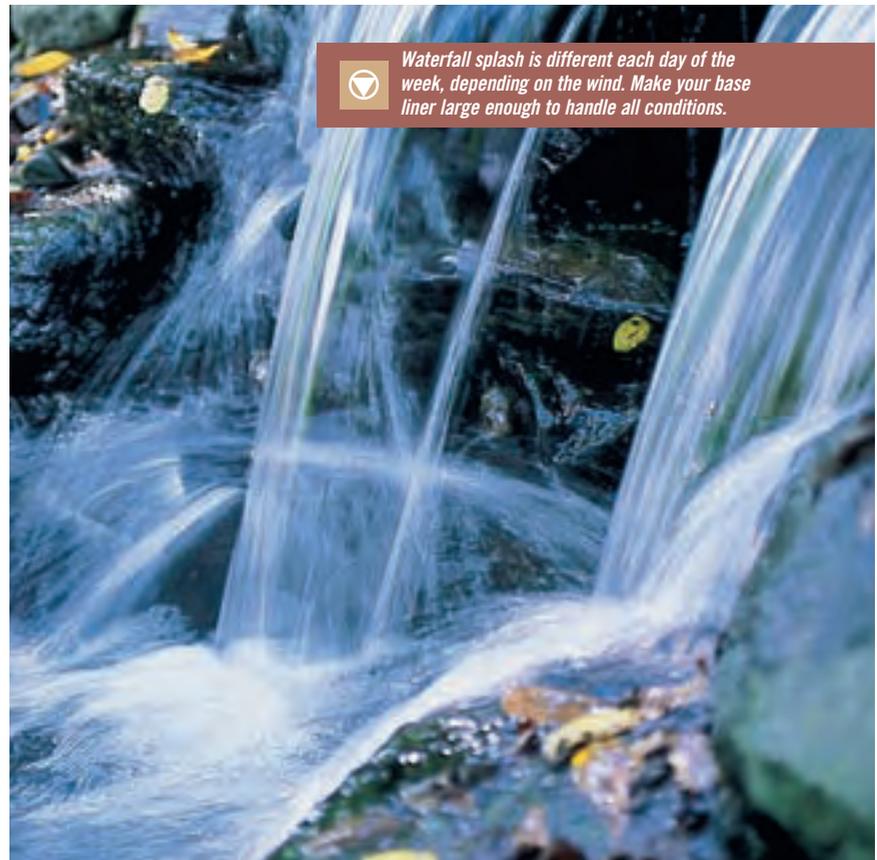
Usted ha gastado 15 minutos por ahí siguiendo las sugerencias listaron encima de y usted todavía no puede encontrar el escape. ¿Qué hace usted luego? Bien, nosotros ahora tenemos que ir un paso adicional y la prueba a estrechar las cosas abajo un pequeño más.

- *Apaga la pompa y sale el estanque por un período de 12 o más horas.*



TIP from TEAM AQUASCAPE

You may want to save yourself some time down the road by spending a few extra minutes with the pond owners teaching them how to identify and fix minor leaks such as low edges and excessive plant growth.



Waterfall splash is different each day of the week, depending on the wind. Make your base liner large enough to handle all conditions.

- *Volver a visitar el sitio después que 12 horas, o pide que el homeowner llame el día siguiente y permitiera que usted supiera si el nivel de agua ha dejado caer.*
- This procedure helps us save time by narrowing down the source of the leak.

esp ¿Qué Determina Esto?

What Does This Determine?

- If the customer calls and says the water level has dropped, then we know the leak is in the pond.
- If the water level remains the same in the pond, then it is assumed that the leak is in the stream.
- *Si las llamadas de cliente y dice el nivel de agua ha dejado caer entonces sabemos que el escape está en el estanque.*
- *Si el nivel de agua permanece el mismo en el estanque entonces se asume que el escape está en la corriente.*
- *Este procedimiento nos ayuda salvamos tiempo estrechando abajo la fuente del escape.*

If the Leak Is in the Pond

The pond owner calls and states that the pond's water level dropped while the pump was turned off. We now know that the leak is in the pond.

- When our crew goes out to fix the leak, they concentrate their efforts on looking for the leak in the pond and completely ignore the waterfalls/stream.
- Before rushing out to visit the site, wait until the water level stops dropping. This may take a few hours or a couple days, and will help determine the height of the leak. Have the homeowner call back when they notice the water level is no longer dropping.
- Visit the site and concentrate your search around the perimeter of the pond at the level that the water has stopped dropping.
- If the water level stopped below the bottom of the skimmer face plate, you can rule out the skimmer and concentrate elsewhere.
- If the water level is above the bottom of the face plate, you should investigate the skimmer. It may not have sealed correctly, but don't tear apart the skimmer face plate.

esp Si El Escape Está En El Estanque

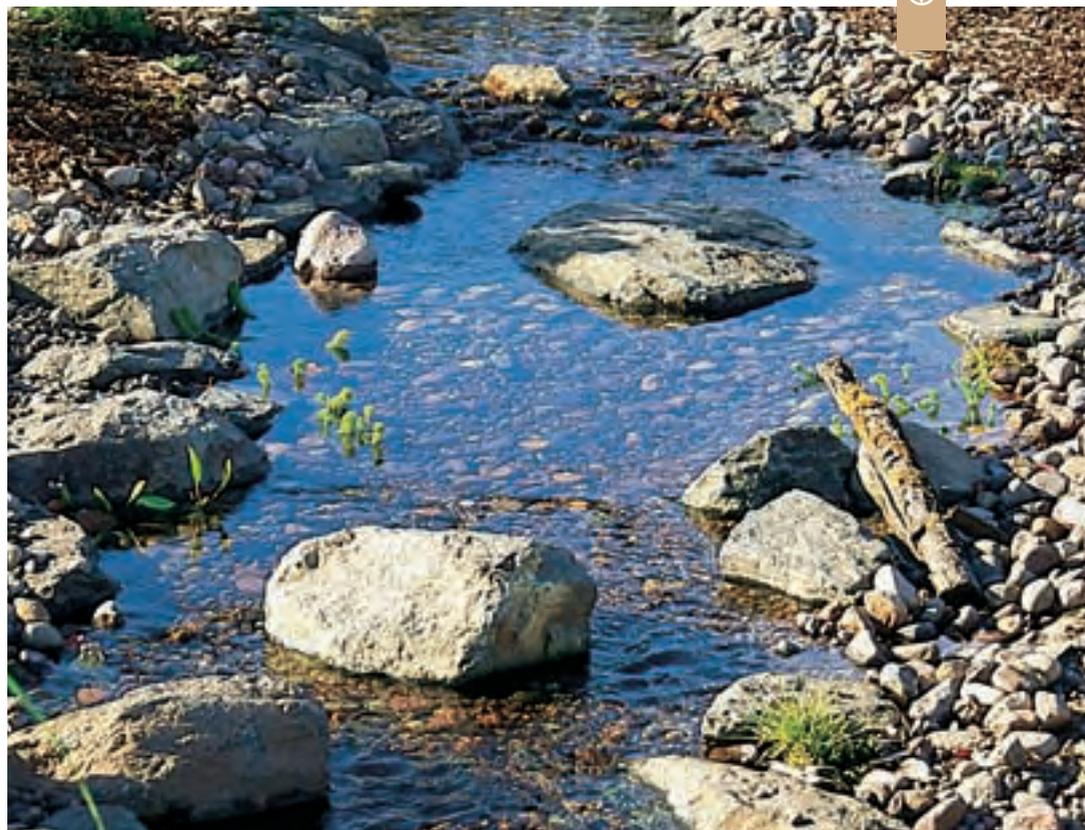
El dueño de el estanque llama y expresa que el nivel de agua de estanque dejó caer mientras la pompa se apagó.

Nosotros ahora sabemos que el escape está en el estanque.

- *Cuando nuestra tripulación sale a fijar el escape, ellos concentran sus esfuerzos al buscar el escape en el estanque e ignoran completamente las cataratas/la corriente.*
- *Antes salir precipitadamente visitar el sitio, la espera hasta las paradas del nivel de agua dejando caer. Esto puede llevar un pocos horas o un días de la pareja, pero ayudar determina la altura del escape. Que el homeowner vuelva a llamar cuando ellos advierten que el nivel de agua no es dejar caer más largo.*

- *Visita el sitio y concentra su búsqueda alrededor del perímetro de el estanque en el nivel que el agua ha parado dejar caer.*
- *Si el nivel de agua paró debajo del fondo de la cara de skimmer lo chapa puede excluir el skimmer y lo concentrado en otra parte.*
- *Si el nivel de agua está encima del fondo de la cara lo chapa debe investigar el skimmer. No puede haber sellado correctamente, pero no despedaza el plato de la cara de skimmer.*

A long stream edge must be examined for wet spots along its perimeter. (Hint: look for darker colored mulch.)



CONSTRUCTION GUIDELINES

Troubleshooting Leaks cont...



The area between the liner and the skimmer is a rare, but potential, leak spot.



If the Leak Is in the Skimmer

- Investigate the skimmer face plate without disassembling it.
- Simply move a few rocks around the front of the skimmer and slide your hand behind the liner. Feel for wet soil around the opening of the skimmer.
- If it's bone dry, it's most likely not the skimmer.
- If the soil is saturated, then the face plate may have not been installed properly and might be the source of the leak.
- Remove the face plate, clean all of the old silicone off the liner, and refer back to the instruction manual on proper procedures for sealing the skimmer face plate to the skimmer. Hopefully, you've solved the leak.

esp Si El Escape Está En El Skimmer

- *Investiga el plato de la cara de skimmer sin desmontarlo.*
- *Mueve simplemente unos pocas piedras alrededor de la frente del skimmer y desliza la mano atrás el transatlántico. Siéntase para la tierra mojada alrededor del abrir del skimmer.*
- *Si es hueso seca, no es muy probable el skimmer.*
- *Si la tierra se satura, entonces el plato de cara no se puede haber instalado apropiadamente y quizás sea la fuente del escape.*

- *Quita el plato de la cara, limpia todo el silicona viejo lejos el transatlántico, y se refiere apoya al manual de la instrucción en procedimientos apropiados para sellar el plato de la cara de skimmer al skimmer. Optimistamente, usted ha resuelto el escape*

If It's Not the Skimmer

- Investigate the liner for small punctures around the perimeter of the pond where the water level has stopped.
- Unfortunately, the only effective way to find this type of leak is to start moving rocks and gravel, and search for the leak by hand and eye.
- The leak, once found, can be easily fixed using Aquascape's EPDM patch tape.

esp Si no es El Skimmer

- *Investiga el transatlántico para perforaciones pequeñas alrededor del perímetro de el estanque donde el nivel de agua ha parado.*
- *Desgraciadamente, la único manera efectiva encontrar que este tipo de escape deberá comenzar piedras y grava móviles y búsqueda para el escape a mano y el ojo.*
- *El escape, una vez que encontró, puede ser fijado fácilmente usando cinta de remiendo de Aquascape EPDM.*



TIP from TEAM AQUASCAPE

You can sometimes determine if the seals on the skimmer and BIOFALLS® filter are water tight by temporarily moving a few rocks around the front of the filter allowing you room to feel for wet soil behind the liner.

Example of a Shutdown Procedure Where the Leak Is in the Waterfalls/Stream

- The pond owner calls and states the pond's water level has not dropped over the past 12 hours.
- This immediately tells us is that the pond is not the source of the leak. So, in other words, do not waste your time looking in the pond or the skimmer for the leak ... it's not down there. The leak is somewhere upstream!
- Turn the pump back on and get the waterfall flowing again.
- First, double check that all of the edges are high enough to hold water, and that any stream liner overlaps or liner seams are done correctly.
- Secondly, check to make sure the seal on the lip of the BIOFALLS® filter was installed correctly and is watertight.
- Don't tear apart the BIOFALLS® filter lip! You can investigate the BIOFALLS® filter lip without completely disassembling the waterfalls.

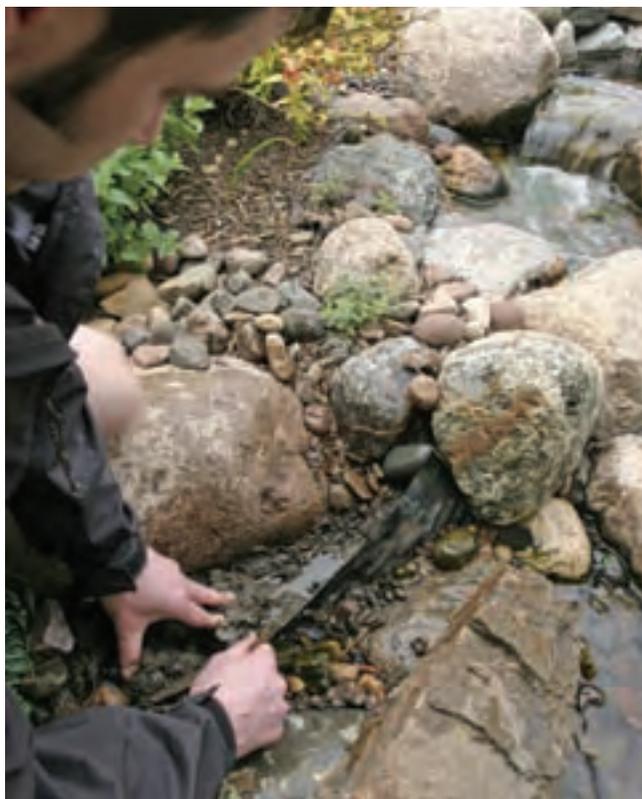
- Move a few rocks around the side of the BIOFALLS® filter and/or remove some soil from the side of the BIOFALLS® filter, allowing you to slide your hand behind the liner.
 - Feel for wet soil around the BIOFALLS® filter.
 - If it's bone dry, it's most likely not the seal on the BIOFALLS® filter.
 - If the soil is saturated, or you feel water leaking, then the lip needs to be resealed.
- **Important Note:** A few things could have caused the leak at the point of the BIOFALLS® filter seal. Either the seal was done incorrectly, or the liner was stretched or pulled too tight while setting rocks for the waterfalls. Make sure to give yourself some extra liner along the front of the BIOFALLS® filter to prevent stress on the seal.



CONSTRUCTION GUIDELINES

Troubleshooting Leaks cont...

- Reseal the BIOFALLS® filter by removing the BIOFALLS® filter lip. Clean all of the old silicone and waterfall foam off the liner, and refer back to the instruction manual on properly sealing the BIOFALLS® filter lip.
- If you have still been unable to find the source of the leak, begin to investigate the rest of the stream and the waterfalls.
- At this point, it is most likely a hole that you should be searching for.



- If the waterfall is right off the side of the pond, or only 5' back from the pond, the most efficient method is to remove the rocks and gravel in the waterfall area and search for the leak by hand and eye. The leak, once found, can be easily fixed using Aquascape's EPDM patch tape.
- **esp El ejemplo de un procedimiento de paro donde el escape está en las cataratas/la corriente**
 - *Las llamadas de dueño de estanque y expresa el nivel de agua de estanques no ha dejado caer sobre las pasadas 12 horas.*
 - *Esto dice inmediatamente nosotros somos que el estanque no es la fuente del escape. Tan, en otras palabras, no malgasta su tiempo que mira en el estanque o el skimmer para el leak ... it no abajo allí. ¡El escape está en algún lugar río arriba!*
 - *Gira la espalda de pompa en y obtiene la catarata que fluye otra vez.*
 - *Primero, cheque doble que todas las orillas son altas, y cualquier transatlántico de la corriente se superpone o costuras de transatlántico se hacen correctamente.*
 - *Segundamente, el cheque para cerciorarse el sello en el labio del BIOFALLS® fue instalado correctamente y es watertight.*
 - *No despedaza el BIOFALLS® labio! Usted puede investigar el BIOFALLS® labio sin completamente desmontar las cataratas.*
- *Mueve unos pocas piedras alrededor del lado del BIOFALLS® y/o quita alguna tierra del lado del BIOFALLS®, permitirlo deslizar la mano atrás el transatlántico.*
- *Se Siente para la tierra mojada alrededor del BIOFALLS®.*
- *Si es hueso seca, no es muy probable el sello en el BIOFALLS®.*
- *Si las tierras saturaron, o usted se siente salir de agua, entonces las necesidades de labio para ser resealed.*
- **Nota Importante:** *unos pocas cosas podrían haber causado el escape en el punto del BIOFALL® el sello. O el sello se hizo inexactamente, o el transatlántico se estiró o fue estirado piedras demasiado apretado mientras poniendo para las cataratas. Cerciórese para darse transatlántico flojo por la frente del BIOFALLS® prevenir el énfasis en el BIOFALLS® el sello.*
- *Reseal el BIOFALLS® quitando el BIOFALLS® Labio. Limpie toda la espuma vieja de silicona y catarata lejos el transatlántico, y se refiere apoya al manual de la instrucción a apropiadamente sellar el BIOFALLS® labio.*
- *Si usted ha sido todavía incapaz de encontrar que la fuente del escape comienza a investigar el resto de la corriente y las cataratas.*
- *En este punto que lo es muy probable un hoyo que usted debe estar buscando para.*



• Si la catarata tiene razón lejos el lado de el estanque, o sólo 5' espalda de el estanque, el método más eficiente deberá quitar las piedras y el grava en el área del catarata y la búsqueda para el escape a mano y el ojo. El escape, una vez que encontró, puede ser fijado fácilmente usando cinta de remiendo de Aquascape EPDM.

Narrowing Down the Leak on Long Streams

• Leaks can also be narrowed down on waterfalls and streams by performing the “pipe test.”

- The pipe test will take a few days to determine the location of the leak, but it will be well worth the effort.
- The pipe test consists of a section of pipe laid on the ground. The pipe is connected to the pump in the skimmer. The pump is turned on and the end of the pipe is then set at the lowest point in the waterfalls/stream.
- We then either travel back to the pond the next day, or have the homeowner call us to let us know if the water level in the pond has dropped.
- If it hasn't dropped, we move the pipe 10' further up the stream. We repeat this process until we notice

the water drop in the pond. We know that once the water drops, the leak can be found within that 10' section of the stream. We can then move the rocks and gravel to search for the leak by hand and eye.

esp Estrechar Abajo el

Escape en Corrientes Largas

- *Escapes se pueden estrechar también hacia abajo en cataratas y corrientes realizando el “la prueba de tubo.”*
- *La prueba de tubo llevará un pocos días para determinar la ubicación del escape, vale el esfuerzo.*
- *La prueba de tubo se compone de una sección de tubo colocado en el suelo. El tubo es conectado a la pompa en el skimmer. La pompa es prendida y el fin del tubo entonces se pone en el punto más bajo en las cataratas/la corriente.*
- *Nosotros entonces o espalda de viaje a el estanque el día siguiente o tiene el homeowner llama nosotros sepamos si el nivel de agua en el estanque ha dejado caer.*
- *Si no ha dejado caer movemos el tubo 10 pies además arriba la corriente. Hacemos este proceso hasta que advirtamos que el agua entra el estanque. Sabemos que una vez las gotas de agua, el escape se puede encontrar dentro de 10 pies del tubo. Nosotros entonces podemos mover las piedras y el grava para buscar para el escape a mano y el ojo.*