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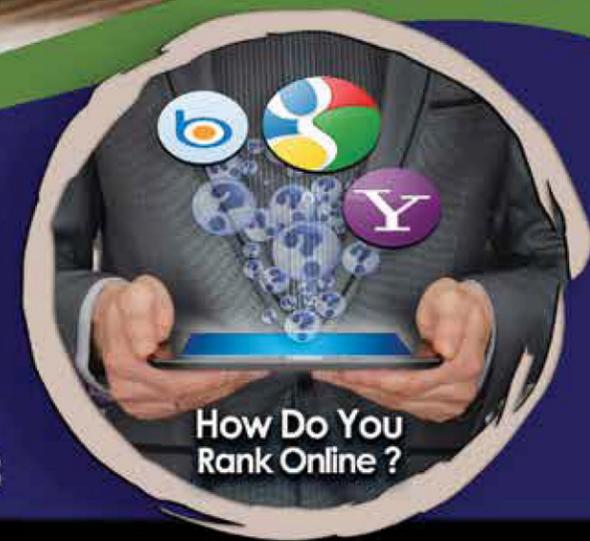
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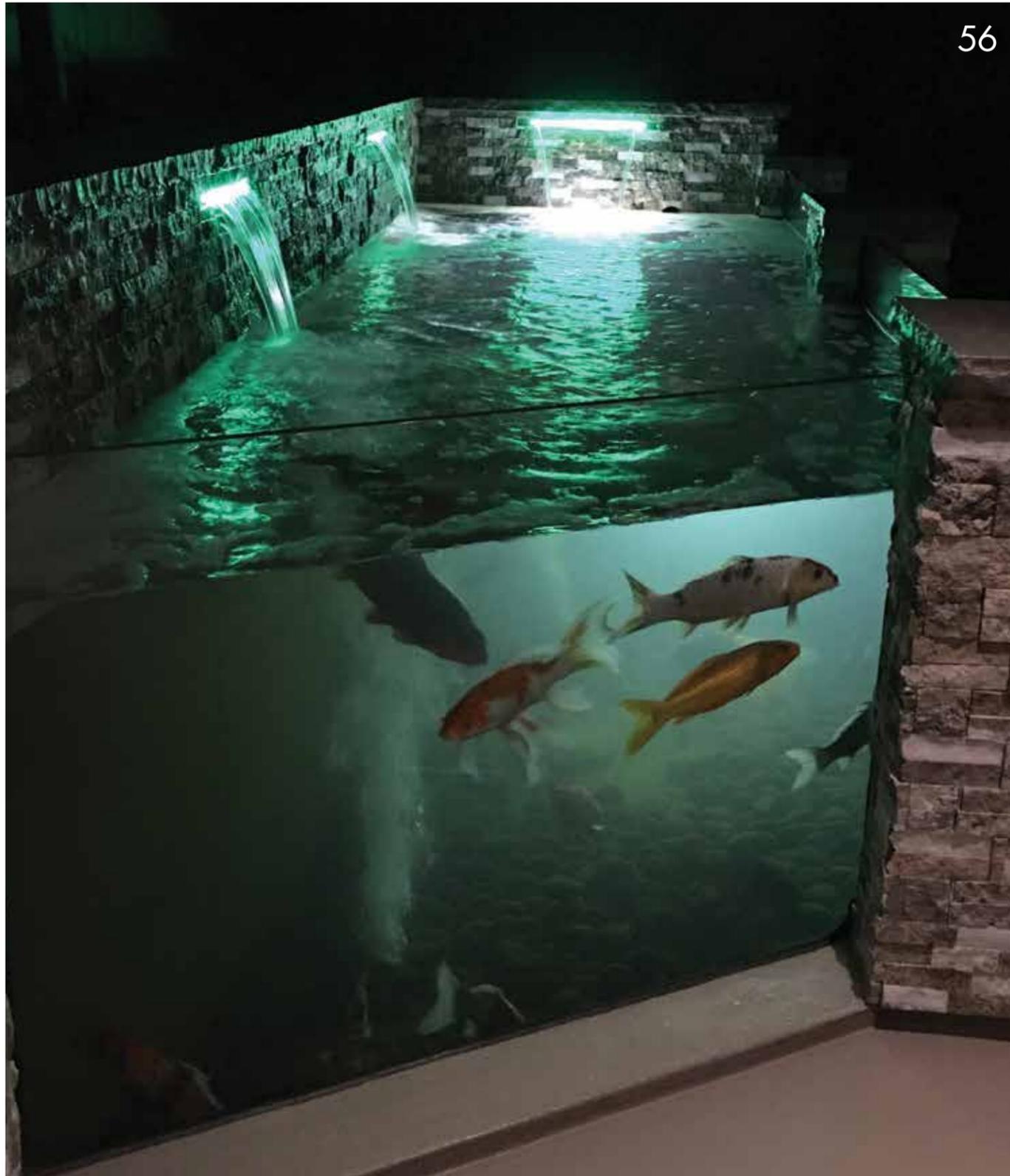
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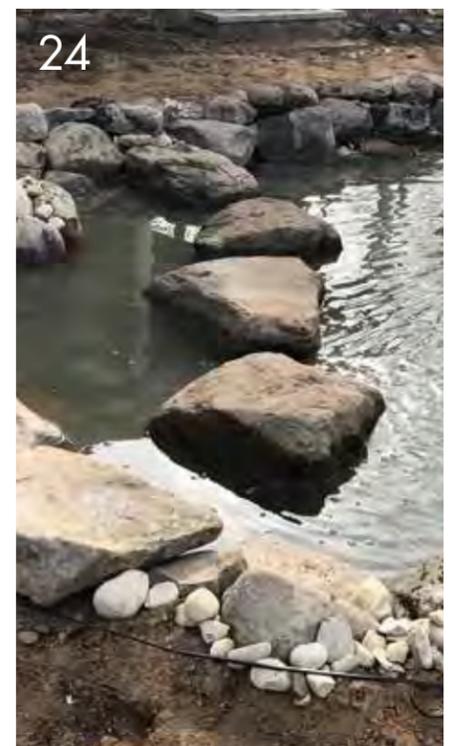
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Upcoming Events

2019

May 7 - 9

National Hardware Show

Las Vegas Convention Center

Las Vegas, Nevada

www.nationalhardwareshow.com

June 22 - 23

Pond-O-Rama

19th Annual Garden and Pond Tour

St. Louis, Missouri

www.slwgs.org

July 6 - 7

Greater Kansas City

26th Annual Pond Tour

26th Annual Garden and Pond Tour

Kansas City, Missouri

www.kcwatergarden.com/tour-2019

August 13 - 15

IGC Show

McCormick Place / Lakeside

Chicago, Illinois

www.igcshow.com

August 21 - 25

Pondemonium

The Q Center

St. Charles, Illinois

www.pondemonium.com

August 23 - 27

IWGS Symposium - France

Paris, Giverny, Le-Temple-sur-Lo, Bordeaux

www.iwgs.org

September 4 - 6

Atlantic Professional Conference

Cleveland, Ohio

www.atlanticwatergardens.com/apc-day

October 8 - 9

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PONDTRADE™

STAFF

Publisher

Lora Lee Gelles 708/873-1921

llgelles@pondtrademag.com

Editor

Jordan Morris

jmorris@pondtrademag.com

Advertising Sales

Lora Lee Gelles 708/873-1921

llgelles@pondtrademag.com

Graphic Design

Gelles Graphics

llgelles@comcast.net

Accounts Receivable

Lois Spano

lspano@pondtrademag.com

Web Editor

Grant Gerke

ggerke@acceleratedcontent.com

Printer

Sutherland Printing

Montezuma, Iowa

For your

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or call **708/873-1921**

Contact Info

POND Trade Magazine

P.O. Box 2721

Orland Park, IL 60462

708/873-1921 • FAX 760/418-4606

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Publisher's Perspective

Inspiration

First off, happy spring, everyone! By the time you read this column, water should be flowing nicely, with fish happily swimming and aquatic plants starting to green up and bloom. I love this time of year.



I have a little personal story to share with you. My son Evan got engaged a couple of months back, and I am looking forward to welcoming his fiance Maggie to the family. Here's where the word "inspiration" comes into play. I sent Evan and Maggie to the Como Park Zoo and Conservatory in St. Paul, Minnesota, to shoot some photos of their Japanese gardens for the November/December 2018 issue ("Japanese Garden Design"). They had never been to the park and were bowled over by its beauty and all the water features. They were impressed and INSPIRED — so much so that they decided to have their wedding reception there in the fall. How cool is that?

Inspired is the key word. What inspires you? Do you follow people on Instagram and Facebook in an effort to conjure up your waterscaping muse — or do you just scroll through and admire their work? I have to admit, I do the latter, and I love to see all the great work you folks are doing out there.

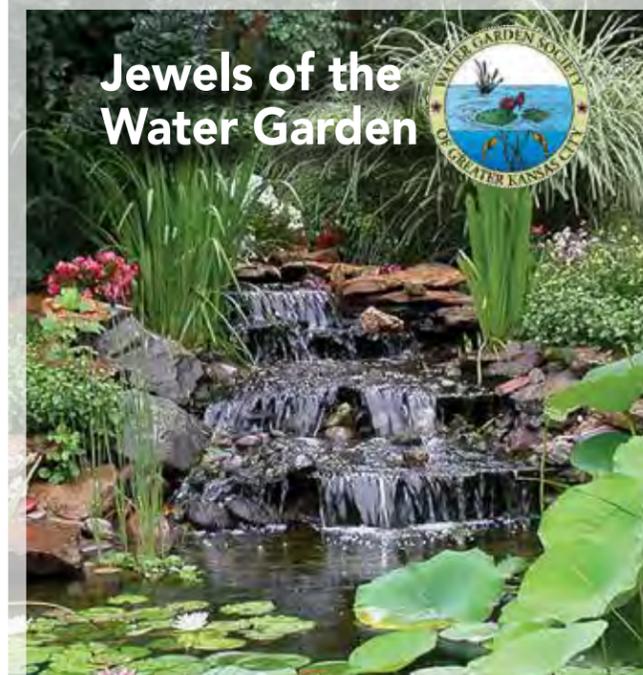
I hope that this May/June issue will add a little inspiration to your life. One quick turn of the page might startle you at first, but worry not — it's just a "neighbor frightener," as the owner might say. To Chris McGowan and Michael Hall, it's a killer water-feature project that turned a few heads and required a lot of savvy to complete.

I'm also finding myself considering a trip to Austin, Texas, to check out Matt Boring's collection of water features on display at Cosmic Coffee + Beer Garden, a new, popular hangout that combines coffee, beer and sustainable living. Check out Matt's story on pg. 30 to see how this new city hotspot forever changed his business.

Finally, I was particularly wowed by the photos in Kent Wallace's article, which begins on pg. 56. Even "outdoor aquariums" are possible with the right direction, a clear vision and most importantly — a little inspiration.

Happy PONDering!

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Watering Down the Face of Death

When alternative art and
waterscape construction collide

by **Chris McGowan,**
Waterline Designs



The Death Pond. Skull Mountain Fountain. Call it what you will — I just call it an interesting project. My partner Mike Hall and I met Felix Sockwell, the owner of this modern-day marvel, when our previous employer was contracted to do a rebuild on his DIY pond. A few months after its completion, he contacted the company again to inquire about bringing his latest vision to light — a skull fountain and waterfall (i.e., a neighbor frightener). It was a daunting task that seemed to keep changing shape. The one thing that was certain was that a privacy screen of arborvitae would line his front yard, leading to a stucco archway entrance to match the architecture of the house. The privacy screen and block supports for the arch were completed before the winter shut us down that year.

Keeping it Weird

When March rolled around, Mike and I had decided to do our own thing, starting Waterline Designs. We were quite surprised when Felix, through the wonders of social media, reached out to us, still wanting to

Clockwise from far left: This is a skull that you can stand on or sit in. With water flowing from its eyes and mouth, it cries and slobbers on command. Hand-bent rebar, once tack welded, was coated in lath and fiber-reinforced mortar before being dressed up in pebbles and a driftwood crown. This was truly a one-of-a-kind project.



realize his death pond. Felix is an artist, a Volkswagen enthusiast and all-around eccentric character striving to bring Maplewood, his town, back to its heyday as MapleWeird. His actions and attractions regularly receive decidedly mixed reviews from the township and town folk, and this project would be no different. The final instructions we received on the skull design were that it would need to be 6 feet tall and spacious enough for two people to sit inside and look out through the eye holes as water spilled from them and the mouth. The outside of the skull was to be covered in pebble mosaic.

While we contemplated the design, we set to work finishing the entryway arch. The previously completed block columns had exposed rebar tie-ons, which were used to secure a plywood frame of the archway. The whole thing was then covered in metal lath, skim coated and popcorned. Voila! The archway was completed. It wasn't long until the township had issued Felix a summons complaining about the "visual nuisance structure." They hadn't seen anything yet.



Cranium Construction

Mike and I decided we would make the skull out of rebar, lath and mortar. We would build the framework and do the pebble prep off-site as a matter of discretion, at least to let the initial shock of our rogue archway die down. We set to work, gathering stones for the mosaic, traveling to four or five different watersheds to catch wild rocks and stopping at several stone yards along the way to check out the domesticated selection. The bulk of the stones were Mexican beach pebbles of black and ivory with some river stone, slate and red pebbles. We found some offcut Belgian blocks that would do well for our teeth. The teeth were to be drilled and wired on, while

The initial mudding (top, left) was done with Type S fiber-reinforced mortar. The mix of choice for pebbling (bottom, left) was two coffee cups of Type S to one cup of hydraulic cement. The grip and set time of this mix was a necessity for many of the rocks involved. We came to agreement on the basic color layout and pebble patterns. Many indigenous and imported pebbles and stones were cut, scored, sorted, arranged and stuck.

the pebbles had to be sorted, cut in half and scored on the back side.

While this was happening, I set to work bending some good old No. 4 rebar into a shape reminiscent of

The bulk of the stones were Mexican beach pebbles of black and ivory with some riverstone, slate and red pebbles. We found some offcut Belgian blocks that would do well for our teeth. The teeth were to be drilled and wired on, while the pebbles had to be sorted, cut in half and scored on the back side.

a skull. All the rebar was bent by hand. When this task was completed, I decided to buy a rebar bender. While it would have been useful to have this tool during the bending phase, the hand-bent curves gave the framework a more organic feel. The frame then had to be tack-welded together and transported to the job site. Once positioned with a dual-action drainpipe plumbing sleeve, lath was attached to the inside and outside of the rebar framework. A few detail sections, like the cheekbones, were made at this point by folding extra bits of the lath. We then began to smear in our fiber-reinforced, Type S mortar mix. As we progressed around the skull, the rebar bender was used to add trays to hold water in the eyes and mouth.

Face Time

It was then time to get our pebbles on. Through experimentation, we found small batches of a 2:1 mix of Type S mortar to hydraulic cement gave us the best set time and workability. The monotony began; picking through pebbles and working in small batches, the face was outlined in pebble. The nose area and gum line were made to look fleshy with red slate. We decided to use more open designs on the sides of the skull. A driftwood crown that doubled as a planter and bird nest was concocted. First, the general layout was fashioned on the ground. Then it was tweaked and fitted to the skull, held together with screws and single-strand, 12-gauge wire. A layer of coconut fiber lined the crown, which was filled with soil and plants. A 2-inch line of flex PVC was run from the skimmer up through the base of the skull and teed off to feed the mouth and left and right eyes, all independent of each other. To reduce splashing in the eyes, a piece of tubing swooped the output directly to the bottom of the trays. This also created a siphon to drain the eye trays, which, admittedly, was an unforeseen bonus.



This is way more than two-faced — it's different at every angle (top) and in every season. Placing plant pockets in the concrete shoulders (bottom) and the driftwood crown help soften up the piece. The arborvitae obscure the sidewalk and road, which one could easily forget is just behind the skull.



Our plumbing design allows the ability to run the mouth and each of the eyes independently of each other (top). Or, just unplug the pump and go for a dryer look (bottom).

The eye trays were then clear-coated to reduce water damage. After running the skull the first time, it was found that several of our pebbles below the eyes would need to be chipped off and repositioned to prevent the formation of rogue streams. A lower jaw and collar bones were worked out and mortared together. A few stone steps were installed to ease entering the skull. The pebble mosaic was continued down into these areas, and more red slate was put in the mouth to give the illusion of a tongue. The next step was, of course, to acid-wash and clean up the disarray. Stone enhancer was applied to the pebbles to bring out their colors. ☞

About the Author(s)

From the time he was little, **Michael Hall** was introduced to the natural world through his uncle, Dennis Hall. Dennis was the curator at the Staten Island Zoo until his retirement. Michael had also bred and sold aquarium



fish and invertebrates for years until his mid-20s.

Moving to a new location in his 20s, Michael switched his focus to snakes, tarantulas and scorpions due to space restrictions. He also focused on studying soil biology, organic farming and permaculture.

Chris McGowan has always had an affinity for nature. He grew up along the banks of the Musconetcong River, where he would build dams and search for the local wildlife.

Chris's previous experience maintaining fish tanks and running a pond construction crew allowed him to combine his technical experience with his love of nature, and he has never looked back. Chris has a bachelor's of science in marine biology from Dalhousie University and has enjoyed a comprehensive employment history working in the natural sciences.

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| Language of **Koi** |

Breathe in, Breathe out

The importance of dissolved oxygen levels in tanks and ponds

by **Ellen Kloubec**,
Kloubec Koi Farms

Fish need oxygen! Adequate amounts of dissolved oxygen are crucial for all fish life. Unfortunately, oxygen is one of the most overlooked parameters of water quality in the retail setting, as well as in koi ponds. Low dissolved oxygen (DO) is an underestimated cause of many fish losses. As a koi seller, it is imperative that you regularly test your holding tanks for nitrogen, ammonia and pH — and monitor the dissolved oxygen level.

Knowing oxygen requirements for optimum fish health will go a long way in your desire to

keep and maintain healthy koi and to offer them for sale to your ponding customers.

Factors to Consider

The minimum DO concentration for healthy growth, tissue repair and reproduction in koi is 6 mg per liter of water (6 mg/L), but ideally the concentration should be higher. A DO reading of 7 mg/L is desirable, and any reading above that should be considered excellent.

There are many factors that affect the DO concentration in fish retailing tanks. Fish load is not the only consideration. Salinity, water temperature and atmospheric temperatures also affect dissolved oxygen. Warm water does not



A handheld, instant-read digital DO meter is used daily at Kloubec Koi Farm. This type of digital meter is pricey but worth the investment.



Biofilters also consume oxygen. Our 75-cubic-foot bead filters are checked often to verify that denitrifying bacteria are active. The shower tower tiers are full of Bacteria House filter media to reoxygenate the water in each grow-out system and strip gases. It provides a polished finish to the water.

hold as much oxygen as cool water. All fish require more oxygen in higher temperatures when they are very active. In cool water, fish are less active, and their oxygen requirement is minimal.

Fish use up oxygen with ordinary activity, such as breathing and feeding. A lot of oxygen is consumed if the fish's flight instinct kicks in when they are netted and

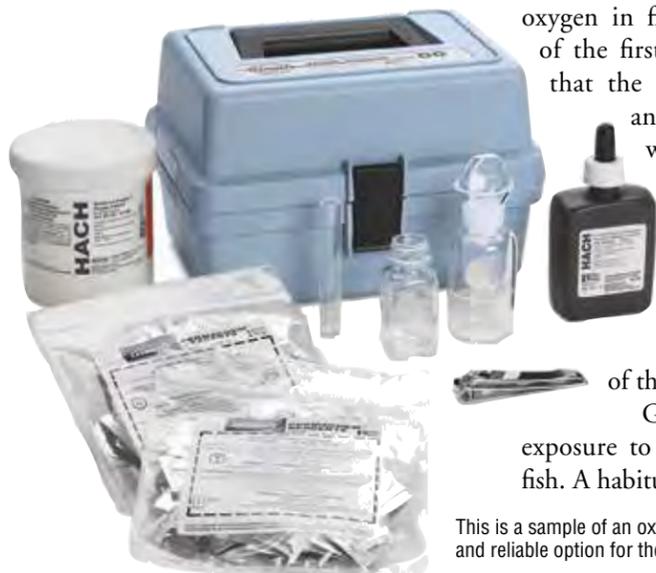
bowled. Fish waste and decaying organic matter also have a draining effect on DO. You may not realize it, but biofiltration also consumes oxygen. Nitrifying bacteria require ample oxygen to colonize and do their job of purifying water effectively.

Recognize the Signs

There are several indicators of low oxygen in fish tanks and ponds. One of the first things you may notice is that the fish are congregating near an oxygen source, such as the water inlet or airstone. Often times, fish will be slow or sluggish and disinterested in food. But more obvious signs of oxygen depletion include fish gasping at the surface or piping at the top of the water.

Generally, prolonged exposure to low DO is harmful to all fish. A habitually low oxygen level can be

This is a sample of an oxygen titrate test kit, an economical and reliable option for the koi retailer. Photo courtesy of Hach.



linked to slow fish growth and persistent fish sickness, and it may contribute to repetitive parasite outbreaks. Continued exposure to low DO is also considered a precursor to bacterial infections in fish. Even short periods of oxygen deprivation can have damaging effects.

Koi can survive for weeks or even months without food — but only a few minutes without oxygen!

During respiration, water is forced through the gills. The delicate gill filaments transfer oxygen from the water to the bloodstream. Normal healthy gill tissue is a deep pink-to-reddish color. Pale gill color can be an indication of low DO or suffocation.

Air Pumps & Diffusers

Electric air pumps with attached airstones or diffusers are the most common form of aeration for fish retailing tanks. Sizing the equipment to each retail system is completely customizable. The diffuser reduces or breaks up the air that is being pushed through the pump

into tiny bubbles that disperse into the water for fish to utilize. These tiny bubbles produce the best possible oxygen transfer into the water. Depending on the size of your holding tanks, multiple airstones may be beneficial.

An air pump that was once adequate may put out less air with constant use and will eventually need to be refurbished or

Water's ability to retain oxygen is determined by the water temperature. Cool water holds more oxygen ~ Warm water holds less oxygen.

replaced. As pumps wear, they usually produce less and less oxygen. A worn or aged pump may not provide sufficient airflow; at worst case, it may fail entirely.

When air stones begin to plug, you'll notice that the bubbles become larger in size and fewer in number. A plugged airstone increases pressure on your air pump, making it work harder and lessening the amount of oxygen transfer into your holding tank. Airstones should be cleaned every six months at minimum. Replacing air stones periodically is a small

Checklist for Fish Retailing Systems:

- Test tanks for DO frequently.
- Observe fish activity for signs of low DO.
- Watch for partially or completely plugged airstones. Clean every six months or replace.
- Make sure that aged or worn air pumps still put out adequate oxygen (like when they were new). Replace or rebuild when necessary.
- Monitor water-pump flow to ensure that enough water flow goes to the filters. Sufficient water flow is necessary to maintain healthy, nitrifying bacteria and remove solids.

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price to pay to ensure that your stock is not oxygen deprived.

Don't forget to check your air hose occasionally as well.

water and well water contain frighteningly low levels of DO. You should pay close attention to the oxygen level

water, and they vary in cost. One of the most inexpensive options is a titrate test kit. Several companies offer their own brand of oxygen test kits, as well as the reagent supplies. When used correctly, the kits are fairly reliable in obtaining a DO reading in mg/L.

Our preferred oxygen test unit at Kloubec Koi Farm is a battery-operated, handheld meter. The meter displays an instant reading when the attached sensor probe is inserted into the water column for a few seconds. There are several brands of digital meters available on the market, though they are generally priced around \$1,000 instead of \$100. As a reputable fish retailer, you should invest in whichever type fits your needs.

For more information on

this and other koi health topics, please visit the Kloubec Koi Farm's koi health website at www.koihealth.info.

Dissolved Oxygen (mg/L) at saturation in freshwater		
Water Temperature		DO at saturation (mg/L)
(C°)	(F°)	
0°	32°	14.6
5°	41°	12.8
10°	50°	11.3
15°	59°	10.1
20°	68°	9.1
25°	77°	8.3
30°	86°	7.6

The smallest crack or split in an airline can have devastating effects. Sun rot is often the cause of air hose damage.

Oxygen depletion can also occur with the addition of new water into your fish retail systems. Please note that tap

whenever a water change is being performed.

Oxygen Monitoring Devices

There are various testing products available to measure the DO concentration in your

About the Author

Ellen Kloubec and her husband Myron began their aquaculture business in 1981, and their farm consists of 80 acres of mud ponds. Together with their son Nick, they raise and supply healthy and hardy koi to wholesale customers throughout the USA and Canada. Ellen loves all things koi.



www.kloubeckoi.com

Waterlily Pests and Diseases

An oldie but goodie: 10-year update

by Paula Biles,

About the Lotus

We never guessed that our 2009 article on waterlily diseases and pests would be such a hit with readers for so long. As the author, I'm especially gratified that it has helped many Nymphaea growers. The article also prompted numerous online questions about individual waterlily problems.

Several queries revealed a common denominator — poor waterlily growing conditions. Unfortunately, unhealthy conditions dramatically raise the odds for a plant to get attacked by pests or diseases. So these updated sidebars reinforce ways that waterlily growers can keep their plants healthier, stronger and more resistant to assault.

Unlike most specimens of the plant kingdom, pests or diseases seldom afflict waterlilies. Water gardeners have it easy compared to gardeners who grow roses, veggies or lawns. Plus, most waterlily troubles are superficial and do little permanent harm. Often they may be prevented and controlled with a watchful eye and careful maintenance.

Here are the most common, from big to small. Some may not be a problem at water garden businesses but might affect your customers. Remember that the key to keep pests from becoming problematic is to regularly monitor the condition of all your aquatics. Then, before anything can become a concern, you can nip it in the bud.

Terrestrial Animals

Dogs don't eat waterlilies. However, canines cause problems when they go for a dip, blissfully overturning pots. While some dogs can be trained to stay out of the pond, breeds like Labradors have an innate love for water. In those cases, some owners solve the problem by giving their Lab its own kiddie pool. A harsher solution is the Fido Shock, which delivers a small electrical charge through a wire fence.

The electrical fence can also deter raccoons, which are known to knock over aquatic plant containers. Keep pots away from the pond edges, since the raccoons won't go into deeper water. These critters are very persistent and outwit most devices designed to scare them away. The most effective deterrents are the Fido Shock and the Scarecrow, a sprinkler activated by a motion sensor. Move the Scarecrow periodically to increase effectiveness. It also helps to place two at right angles. If deterrents don't work, check with your animal control departments. Often they'll provide traps and then remove the captured animal. To bait the trap, use the unlikely but extremely successful delicacy — Twinkies!.

Aquatic Fauna

Turtles will eat anything slower than they are, and that includes waterlilies. Symptoms are lily pads that appear to have been cut with a knife or scissors. The best solution is to relocate the turtle to a more appropriate pond.

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Well-fertilized and trimmed waterlilies look and sell better, like the N. 'Tina' (left). The one on the right is stressed and unhealthy. Fertilizing the plant will make it less stressed and less susceptible to insect attack.

Natural or Chemical Treatments?

Be cautious of all pesticides and always use the least harmful treatment first. If mechanical control (squishing by hand) doesn't work, then try the appropriate insecticidal soaps, sprays or dusts. These rely upon natural bacteria that target specific organisms, diatomaceous earth or other natural derivatives. Unlike pesticides, they are usually not harmful to other insects and pond inhabitants. (Unfortunately, those based on pyrethrum and rotenone are toxic to frogs and fish.) Numerous environmentally friendly treatments are now available, such as Blade Runner, Herbal Aphid Spray, Dipel, and several insecticidal soaps.

If biological controls are unsuccessful and you must resort to a pesticide, follow some simple precautions. Check what the label says about use with fish, pets and other wildlife. Many products may be safe on terrestrial plants but should never be used in or around the pond. Whenever possible, remove the plant and treat it outside the pond. After it has been treated, rinse it off and return it to the water garden. Some chemicals might require water changes after treatment if applied to the pond.

Most pesticides and biological controls are best applied at the end of the day. There is less breeze to blow spray to surrounding areas or plants; there is less chance the spray will burn or damage the plant; there is less opportunity for UV to degrade the effective ingredients; and absorption of the active ingredients into the plant's system is usually higher.

Some koi will snack on lilies and root around in pots while others don't. Until someone figures out why this happens, take precautions to reduce koi damage. Cover the soil in containers with gravel and then with stones bigger than the largest koi's mouth. (Some ponders say lava rock is uncomfortable in a koi's mouth and they'll avoid it.) Place lilies very close to the surface (3 to 6 inches). This prevents koi from grazing in the pot and also gives new leaves a chance to grow.

Butterfly koi usually make better water garden pondmates, as do goldfish and koi raised from babies. Whatever

you do, don't add a single pot of plants into a pond that has been sterile of vegetation. The new diversion will soon become lily salad. Another strategy to protect waterlilies is to buy or make a cage around the plants. As a last resort, create an adjacent but separate pond area for the lilies.

Ramshorn and Japanese Trapdoor snails don't usually harm aquatics since they feed on decaying plant material. However, pond and apple snails do feast upon lily pads and other fresh vegetation. A technique to get rid of snails without altering your water chemistry is to place a lettuce



Monitor regularly for China Mark Moth larva. Kill them by squishing for tasty fish treats, or treat with safe BT spray.



leaf or zucchini slice in the pond. Leave it overnight, and then remove it and destroy the snails it has attracted. Repeat as needed. Adding snail-eating fish, like the Clown Loach, is another biological control. Potassium permanganate and other specialized chemicals can be used, but the biological controls work best in backyard ponds.

Insects

APHIDS. The key to controlling aphids is to keep them from ever becoming a problem. As soon as you notice the little buggers, squash them by hand. They usually appear on new growth or older yellowing leaves and may start reproducing in terrestrial plants near the ponds. Although many books recommend washing aphids off leaves so the fish can eat them, this only works for light infestations. You can overflow the pond, spraying hard to flood them out. Repeat every day or two until aphids are under control.

Light oil sprays will suffocate the aphids and are not harmful to fish or plants. Sprays should be repeated every 10 days to be most effective. Mix two parts vegetable oil to eight parts water and a dash of dishwashing detergent. Treat in the evening and rinse off the oil the next morning. A Volck oil spray (5 tbsp to 1 gal water) also works. Spraying trees and vegetation around the pond as soon as any aphids are detected is the quickest way to prevent an infestation in the pond.

Other environmentally safe controls include Diatomaceous earth, a microscopic abrasive that kills aphids. It can be dusted on the leaves or mixed with water and sprayed. Again, flush the pond of extra residue so it doesn't harm other pond inhabitants. Blade Runner, Aphid-X, and Herbal Aphid Spray are made from natural ingredients. A 1.5-percent solution of insecticidal soap left on for less than an hour also works well.

A very low-tech aphid control strategy is to drown the aphids. This can be done by submerging the plants overnight or by putting some newspa-

Seasonal Maintenance for Healthy Lilies

Waterlilies are fairly low maintenance, especially compared to equally gorgeous terrestrial flowers. However, they do require some regular care to stay healthy and bloom well. Here are the basics.

Rinse & Observe

Whenever you add water to your pond or display tanks, thoroughly spray all the plants. This keeps the foliage clean and looking good. It also washes off any pests before they become a problem. If you have an automatic top-off system, use the hose to manually spray everything at least once a week.

While you spray, methodically check the lilies and other pond plants for any signs of damage — pests, holes, discolorations, etc. If you see anything suspicious, cut it off and discard it. (Old-time water gardeners burned all pest-infected or diseased foliage to eliminate chances of contagion.)

Pests and diseases are infinitely easier to control before they start to reproduce and spread. Make "rinse and observe" a weekly routine. It is also the perfect time to check your fish and take a relaxing break from screen time.

Trim

Pads on water lilies live four to nine days (depending on the variety) before they turn yellow and decompose. But the good news is that each lily only needs four to nine pads to grow. Regularly trim off the oldest leaves — those farthest from the growing tips. Those are the weakest and most attractive to pests. Removing them from the pond also helps maintain good water quality and reduces the load on your filtration system.

Cutting off flowers that are done blooming is called deadheading. When left on the plant, faded blooms sink below the surface, may form seeds, and then decay. Deadheading keeps the water much cleaner and has another important advantage — it diverts the plant's energy from making seeds to making more flowers.

Fertilize

The majority of water gardeners plant waterlilies in containers without any holes. This means each lily must get all its nutrients from soil in that pot. Nutrients from the original planting can be quickly utilized during the growing season. How fast that happens depends on the lily, pot size, and climate.

Signs are clear when the water lily needs more food. Lily pads lose their vivid green color, pads gradually get smaller, and most sadly, flower size and frequency decrease. A starving lily is definitely stressed, which makes it more susceptible to pests and diseases.

Many efficient (or lazy) gardeners report their most vigorous lilies every spring to ensure they'll have plenty of space and nutrients all season long. They incorporate a controlled-release fertilizer with micronutrients and NPK. This provides a steady food



This root bound lily definitely ran out of space and should have been repotted months ago. Vigorous lilies can be repotted each spring to provide growing room for all seasons.

supply over the entire growing season, resulting in healthy, happy waterlilies.

If you have to fertilize a lily mid-season, use aquatic plant tablets that also contain micronutrients. Poke holes into the soil, insert tabs, and then cover the holes with soil. (This prevents upsetting the water balance and growing healthy algae.)

A lily that has run out of space is easy to identify. Try poking a stick or pencil into the soil. If there is no available room, it is root bound. It's time to repot and maybe to divide the plant.

Repot & Divide

When the time comes to repot or divide your lily, please contact someone who has done it. The ideal person is someone from your neck of the woods and climate zone. Listen carefully to what they say; it is important. Repotting and dividing waterlilies is very different from terrestrial plants. Without guidance, you could screw things up and set the waterlily back a year or worse.

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There are many kinds of aphids in several different colors. They're usually less than 1/8 inch long.

per on top of the leaves and leaving it there for several hours.

MIDGES. Leaf-mining midges chew wavy lines in the lily pads. These very small larvae can be handpicked, the leaves can be removed, or the water can be treated with Mosquito Dunks.

CHINA MARK MOTH. This small, nondescript brown moth is the waterlily's major pest and is also called the Sandwich Man. It is nocturnal and lays eggs on the underside of floating leaves. After hatching, the larva cuts leaf pieces to make protective sandwiches. They affect waterlilies, although the larva also burrows into any floating leaves or debris. They have a two-week cycle, so keep a close check for them throughout the growing season.

The mechanical control method, better known as squishing, works well to control an initial outbreak — fish just love the worms! *Bacillus thuringiensis* (Bt), a natural bacteria, can be used as a spray. Once ingested, it kills the larva but won't hurt people, pets or fish. It is the active ingredient in Dipel, insecticidal soaps and Thuricide. As with many sprays, it is best applied at the end of the day. If there is a severe infestation, the best remedy is to remove all affected foliage close to the crown of the plant and destroy it.

Diseases

Many years ago, several varieties of hardy lilies were susceptible to crown rot, a fungal disease. The leaves on affected plants would curl and turn yellow, and buds would rot below the surface. The

Healthy or Stressed — It Makes a World of Difference

Healthy waterlilies are very tough plants. They withstand rains, winds, droughts, hail storms, and neighborhood kids with sticks. And more importantly, pests usually ignore them. Thriving lilies grow fast and bloom well, with plenty of leaves and regular blooms. There are enough lily pads so that an occasional pest nibble can be trimmed away without making a dent in the appearance or health of the plant.

A healthy waterlily has good soil (not potting soil) in a suitably large container — 2 ½ gal or more. Lilies are hungry feeders and should be fertilized at least every growing season. A controlled-release fertilizer with micronutrients is ideal. Most lilies (especially tropicals) benefit from repotting every other year. The type of waterlily and the climate zone obviously affect how fast it grows,

how large it gets, how much food it needs and how often it should be repotted or divided.

Nymphaeas are strong growers, so a lily quickly fills the container it came in. Any root-bound plant stuck in an overly-small container will be stressed. The lily won't have enough room, food or nutrition. It becomes a prime target for pests and diseases. Weak, new leaves attract aphids, thrips and other dangers. A sickly plant grows slowly, so any pest damage greatly weakens its overall strength. And to add insult to injury, the lily's ability to bloom is also greatly reduced.

The bottom line is that healthy waterlilies are more attractive, have larger and more frequent blooms and are less likely to be attacked by pests or diseases.

plant would soon die since the rhizome had rotten away, leaving a stinky mess. Treatment was to thoroughly soak the tuber in a fungicide. However, since the disease is highly contagious, the best option was to remove the plant and completely destroy it. Luckily, the incidence of this and other fungal diseases has decreased as less susceptible hybrids have been developed. ☞

About the Author

Paula Biles was diagnosed at an early age with CPO (chronic plant obsession). The constant compulsion to have growing leaves and muddy hands led to an obvious treatment: water gardening.



Paula belongs to the Garden Writers Association and has been a regular columnist for numerous hobbyist and trade publications. Her articles and photographs have appeared countless times in water garden magazines, newspapers, books and online.

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The Flooded Skimmer

Filtration that even Noah would approve of

by **Roger and Melody Sears,**
Songbird Ponds

Since I began building ponds more than 30 years ago, technology has come a long way. Some of the best improvements have been the skimmer and waterfall box systems. They allow for continuous cleaning of the pond surface, mechanical and biological filtration and easy access and protection for the pump.

Although the skimmer system is vastly superior to previous filtration attempts, it brings three distinct challenges. Since skimmer boxes are built into the pond edge, it can be difficult to conceal the box and still maintain a natural look. Inevitably, the nets and plastic debris baskets wear out and break. In areas with cold winters, ice buildup can require the addition of water to prevent pump burnout. Since most skimmers have an opening of only 8 inches, they usually begin to starve the pump after a water level drop of only a couple of inches.

The Flooded Skimmer

To address these challenges, I designed what I call a Flooded Skimmer. At one end I place multiple stepping stones across the pond. The gaps between these boulders create choke points that draw and trap debris, where it easily can be netted out by the homeowner. This system exponentially increases the flow rate of water to the pump, thus reducing the concern of water loss due to ice buildup or evaporation. Since there is no skimmer box to attach to the pond edge, there are no possible leaks around the weir opening, — not to mention no nets, pads or baskets to fail, and no more awkward, faux rock lids!

The Flooded Skimmer does have one limi-

tation. The pond needs to be 11 by 16 feet or larger to have the necessary room for it to be implemented. The materials needed are: an extra 5 feet of liner and underlayment, two small sustain tanks or matrix units and an appropriately sized pump canyon to accommodate the pumps.



Excavation is needed to bury the matrix units and pump canyon.

What Lies Beneath

What I have described so far are the benefits and challenges of a Flooded Skimmer and what it looks like in a finished pond. Most of the nuts and



The stepping stones are placed next to the dropoff to the deeper pond area.



Gravel is placed around the matrix units and pump canyon.

bolts, or “infrastructure” units’ tops are flush with the soil, and the top of the pump canyon is a couple of inches above water level; this is called the skimmer pit. Next, determine where the step boulders will be

The skimmer area needs to be adequate to accommodate a 12-inch-deep shelf where the matrix units and pump canyon will be sunk with enough shelf space to place the boulders, both those along the pond’s edge and the stepping stones.

units and pump canyon will be sunk with enough shelf space to place the boulders, both those along the pond’s edge and the stepping stones. You can be creative with the size and shape of the 12-inch shelf; however I like to keep it as small as possible to allow easy access from the pond edge or from the step boulders. I have mostly adopted a two-shelf option where I can achieve 24-inch depth quickly to create the largest area as possible at 2 feet.

First, excavate the entire pond down to the 12-inch level. Position the pump canyon close to the pond edge so it can be hidden with the perimeter boulders and allow easy access from the pond edge. Then lay the matrix units flat and end-to-end, abutted against the pump canyon and 12 inches out from and parallel to the pond edge. Mark the perimeter of this area and remove the units. Excavate that area

to a level where the matrix units’ tops are flush with the soil, and the top of the pump canyon is a couple of inches above water level; this is called the skimmer pit. Next, determine where the step boulders will be

placed; this marks the interior edge of the 12-inch shelf. Then, dig out the rest of the pond.

Once the excavation is complete, install the underlayment and pond liner. The extra 5 feet of liner and underlayment are needed to fully line the skimmer pit. I add another piece of underlayment over the pond liner inside the pit to protect it from the matrix units and the pump canyon.

Install the matrix units, pump canyon and the pump or pumps. Use 1 to 3 inches of gravel to fill in around the voids of the matrix units and pump canyon to secure them in place. This is the same gravel I use to cover the tops of the matrix units and the entire pond bottom. When I install the pumps, I take the pipes out through the liner to the waterfall. Taking the pipes over the liner instead of through the liner pushes



We replaced one of the stepping stones with a staddle stone, which was a favorite of the homeowner.

I like to use boulders that will be about 2 inches above the water level and have a flat surface for safe stepping as well.

the liner down, exposes the pond edge to leaks and makes the pipes harder to hide. The liner needs to be thickened by placing a piece of cover tape on both sides, with a bulkhead fitting placed in that area. This will allow for the bulkhead to be tightened enough to get good compression on the rubber gasket without the liner getting twisted and creating a crease or a fold, thus eliminating the risk of a leak. If I am using multiple pipes, I use a drilled-plastic cutting board to make a backer board to further secure the liner, fittings and pipes.

Boulder in the Area

I like to use boulders that will be about 2 inches above the water level and have a flat surface for safe stepping as well. However, any boulder, or even statuary, can be used, as long as it breaks the water surface and is placed within 6 to 12 inches of the next one, creating a choke point. The water will be forced through the boulders at a quicker rate, creating a faster draw and pulling surface debris through with it. The tighter the spacing of the boulders, the greater the water velocity will be. Try to use smaller boulders

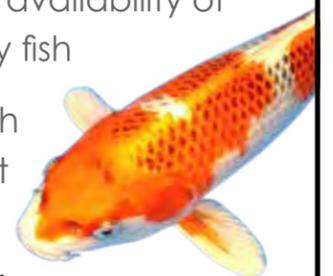
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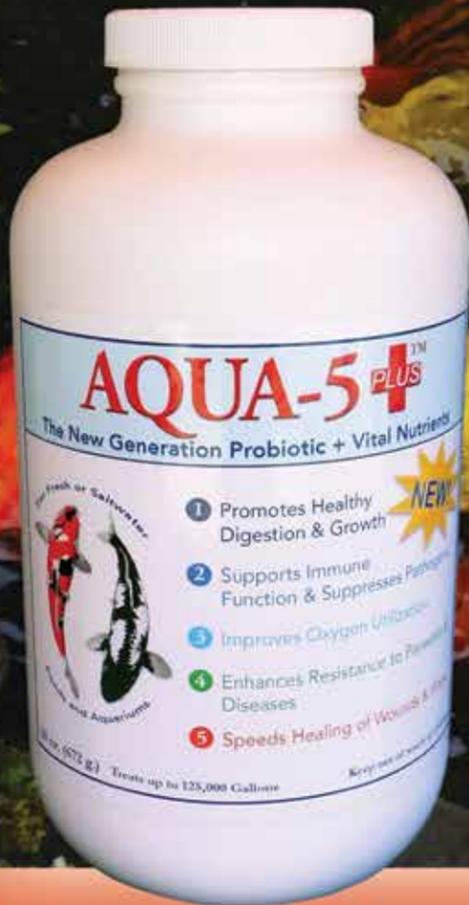
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Here's a nice view of the collection area behind the stepping stones, which can be netted out as debris is drawn in.

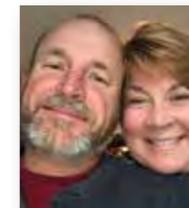
to hide the pump canyon, and place them around the perimeter on this area of the pond's edge. You need to leave an area of open water for the debris to collect and be netted out.

You can use aquatic plants in this area; just use ones that are more upright and not ones that spread over the pond surface. Also keep in mind, fish food may be drawn into this area, and the fish will swim in to clean it up.

Is this the perfect solution to every pond? No. However, it can be a part of everyone's pond-building toolkit of ideas. A Flooded Skimmer is versatile and can be used with external pump systems, pressure filters and more. This gives the pond builder another option to achieve a more interesting pond. ☞

About the Author

Roger and Melody Sears are the owners of Songbird Ponds in Hanover, Pennsylvania. Roger has worked in the pond industry for more than 30 years, with different jobs ranging from digging the hole, to designing the hole, to selling what goes in the hole, and back to what he loves best, doing all three. Melody is in charge of everything else. Everything — including Roger.



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| Sustainable **Fun** |

A Cosmic Affair

Coffee and beer garden
showcases sustainability
(and water features)

by **Matt Boring,**

Texas Ponds and Water Features, LLC

In February 2017, I received an interesting phone call that ended up changing our business for the better. The man on the other end, Paul Oveisi, said that he was putting together a brand new coffee and beer garden near Downtown Austin and wanted a pond to be the centerpiece of the outdoor area.

His vision was to create an environmentally friendly, sustainable business model as an example to other local businesses. He wanted to show them how they could help reduce their carbon footprint while running a profitable business. The picture he described to me was beautiful and well thought out. There would be food trucks on the property as well as an outdoor deck with picnic tables spread throughout the garden for people to sit, eat and drink. An organic garden would provide fresh ingredients for the food trucks and herbs for the specialty cocktails that would be served in the main building. On-site compost-



The chickens consume green waste and help with composting. They're also featured on the cans of Cosmic's cold brew coffee with CBD oil.



Guests enjoy food and drinks in the courtyard near the ecologically balanced ecosystem pond.



A visitor stops to take in the beautiful waterlily blooms and koi in the pond.



The Cosmic pond is a great tool for teaching kids about nature's critters. Frogs and dragonflies also make their home here.



Transforming this hillside (top, left) into a series of natural looking waterfalls required some big stones. The underground portion of the pondless waterfalls (middle) contains the pump vault, two pumps, and EcoBlox. Most of the rocks have been placed (right) but there's still a lot of detail work to be done. The family-friendly atmosphere (bottom, left) attracts all ages of admirers to the water features.

content to graze on the biofilm, algae and other organic things that end up in the pond. We don't need to feed the fish or fertilize the plants in these ponds. Our ponds work with nature — not against her.

For years, Austin has had to battle with algae blooms in our natural creeks and streams that are caused by fertilizer runoff from nearby neighborhoods. So the concept of the balanced organic ecosystem pond really struck a chord with me when I first learned of this philosophy nearly 20 years ago. And it's the only kind of pond I've ever built. In fact, I think of them more as water gardens because of the variety of beautiful plants and creatures that make their home in and around them. I ended up inviting Paul

over to see the pond in my backyard. As soon as he saw it, he said, "Oh yeah. This is what I want." We made a deal right there. I gave him a discounted price with the expectation that having one of our ponds in a public location would help us sell more work.

An Initial Success

The water garden was the first improvement that was made to the property. It was soon followed by a large rainwater-harvesting tank and a chicken coop. The chickens help with the composting process, and their droppings help provide a rich, fertile product that's used in the garden and landscaping on the property.

When the Cosmic Coffee

+ Beer Garden finally opened in January 2018, it was an immediate success. Very soon there was a need for more seating, because it was packed all the time! Moving the food trucks farther back would open up the needed space, but this would also expose an unsightly hillside that was experiencing some erosion problems at the time.

Earlier, Paul had asked me what I would do with that area if I had the chance. "I would put waterfalls all the way down the hillside using large boulders to act as a sort of retaining wall," I said. I was envisioning a 50-foot-wide wall of boulders and water crashing every which way down the hillside. We got the call in February and were building before March even started. However, Paul didn't share my vision for a giant wall of boulders. He wanted it to look like something more characteristic of the Austin area — essentially, springs appearing out of the ground and running down the hill.

Phase Two

We settled on an idea that included three separate pondless waterfalls that left lots

of room in between for the existing Palo Verde trees and some landscaping that would be installed after we were finished.

There was one small catch, though. He didn't want to move the Leroy and Lewis Barbecue truck until we were finished, because he didn't want the customers wandering onto our construction site. So that left us just barely enough room to squeeze the excavator between the barbecue truck and the pond-free basin. It was very tight and very smoky, as we were working within feet of the smoker trailer they were using to cook the food.

Once again, we gave them a great price, because we wanted the public to see that we can work effectively with large boulders and create large, natural-looking waterfalls. A week after we began, the new water feature was complete, and it was time to move the food trucks around for the big reveal. The new dining area was now open with three stunning waterfalls along one wall of this outdoor area!

Additional landscaping was added, along with a drip-line system to irrigate the plants on the hillside with captured rainwater. Both the

ing would turn food waste, leaves and coffee grounds into organic nutrients that would be returned to the garden and used on the rest of the property. The bar would carry locally made beers and locally roasted coffee to promote our local craftsmen. Paul had spent the last couple of years studying and working in sustainability and permaculture and wanted to incorporate those ideas into his new business. "You had me at beer," I laughingly told him.

Working with Nature

I took a few minutes to explain to him that the ponds we create are built not only to look natural, but also to function as balanced aquatic ecosystems. They require no chemicals to stay clear, clean and healthy environments for the fish and plants that live within them. The fish waste, which is broken down by the bacteria, becomes the plant fertilizer, and the fish are



A panorama shot shows off the three waterfalls that grace the hillside near the food court with landscaping filling in nicely.



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water garden and the pondless waterfalls are topped off using the rainwater. The vegetable and herb gardens are also watered with the same rainwater. The property is always changing as Paul



gets new ideas, and there's still room to expand in the future by moving the food trucks farther back. Hopefully the next expansion will also include some new water features!

A Texas-sized Showcase

The water features that we built have become a big hit with the guests. Almost every time I go there, I see people standing and watching the waterfall or the colorful koi swimming in the pond. I see parents using our water garden as a tool to teach their kids about nature. People use the pondless waterfalls as a backdrop to take pictures of their friends to commemorate their visit to Austin. Every television report or video blog that's been done on the property has shown our work — and there have been many.

This has led to so much good exposure for us. And as expected, we sold several new water feature installations just because people saw our work in a public setting. As with most pond builders, the majority of our work is done in private backyards and is never seen by anyone except the homeowners and their immediate families and friends. I can't stress enough to other water feature artists the benefits of doing something that's in the public eye. It's now constant advertising for our company.

Cosmic is also now a place where we can meet potential clients or just send them to look at our work without feeling like there's a salesperson pressuring them

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System Specifications	Results for Aeration
Surface Area: 33	Surface Volume (gallons): 600,000
Average Depth: 7	Calculated Site Turbidity: 24hrs: 20.02
Water Flow: 2.31	Estimated System PSI: 150
Detached Diffuser Depth (feet): 15	
Particulate (feet): 400	

Recommended Airmax Aeration System			
Model	Direct Burial Length (feet)	Weighted Aeration Size (sqft)	Weighted Aeration Length (feet)
120	120	38	135
150	150	38	135
180	180	38	135
Weighted Aeration Size (sqft)	Weighted Aeration Length (feet)	Weighted Aeration PSI	Weighted Aeration PSI
22	75	135	135



A guest relaxes by the pond while enjoying live music on the outdoor deck.

to buy something. This single venture is responsible for more than 50 percent of the new construction we did in 2018. And it's just the beginning. They're already scouting out locations for Cosmic II!

Austin City Limits

This being Austin, Texas, Cosmic Coffee + Beer Garden now hosts live music on the deck (and inside when the weather's too cold). There are fire pits burning in

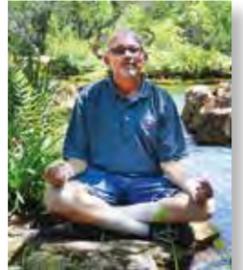
the cooler weather, and you can purchase S'mores kits inside at the bar to roast over the fires. The venue is totally dog friendly, and most days, there are dogs enjoying the place with their owners in tow. The wooden pole that supports the shade sails also sports a sculpture of Willie Nelson by a local chainsaw artist. This place really captures the Austin vibe! It's like a big backyard for people who live in the area to hang out in, drink some coffee or beer and eat some tacos, barbecue or chicken

wings. I've never seen someone's vision come together so quickly and thoroughly as what has happened with Cosmic Coffee + Beer Garden these past couple of years, and I'm so glad our company was able to play a small part in making it happen. ☺

About the Author

Matt Boring is the owner and designer at Texas Ponds and Water Features LLC.

He has been building ponds professionally for more than 16 years, winning numerous awards and having his work featured in several publications. Texas Ponds and Water Features are an Atlantic Professional Contractor based in Austin.



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Turtles need basking rocks and places to hide in the pond.

| Cover Story |

The Turtles' TURF

Ponds aren't just for fish

by **George Janowiak,**
Gem Ponds

I grew up in the late '70s and early '80s near Chicago, catching just about anything that would swim, crawl or hop. When I caught something, I would bring it home and put it in one of several tanks in my parents' townhome. When I ran out of tanks, I found a baby pool that somebody was throwing out, and my best buddy and I decided to ride it home on my banana seat bicycle. I peddled with my buddy holding the pool as he sat on the handlebars. I had several turtles and bullfrogs at this point, and the pool made a perfect home for them! We would catch large goldfish out of a cemetery pond and feed them to my turtles.

Looking back now, my mom was a saint for putting up with this. When I ran out of room in my basement, I dug a hole on private property and lined it with garbage bags. I guess this was my first pond. I was 14. Needless to say, that failed miserably!

Today, my company, Gem Ponds Inc., established in 1999, installs backyard ponds and water features throughout Chicagoland. We are a Certified Aquascape Contractor and have installed hundreds of ponds in Illinois. Clients from time to time ask me about putting turtles in their ponds. Here are some things I have learned from keeping turtles as pets over the last 40 years. You must know these things before introducing turtles to your pond or your client's pond.

Pets on the Half Shell

Turtles will require more work and care than just keeping goldfish and koi. Turtles are always looking for something better and will tend to roam and leave the beautiful pond you just built. The



Meet Tex, a Super Texan Diamond Terrapin.

best way to keep turtles in and away from predators is to keep them in a raised structure. I built my current turtle pond out of brick. It has walls with overhanging ledges that prevent them from escaping. Yes, you can try in-ground setups, and I have had clients with moderate success on keeping them for a while, but the turtles always find a way out and wander off.

All turtle ponds should have plenty of areas



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Above is one of my red-eared sliders raised from a hatchling. What a face! Spillway bowls (left) make a visual impact and add filtration. The turtle pond (below, left) is always a big hit on pond tours!



for them to bask in the sunshine. I currently have 16 turtles. They range from 3 to 20 years in age, and on any given sunny day, they are all out in the sun. I provide several logs and driftwood for them to climb on. I also have a beach area with sand and perennial plantings where they can lay and hide eggs.

If you have both male and female turtles, they will eventually breed. As a general rule, male turtles have longer nails and tails than females. I have areas near the water for the females to dig and lay eggs. I provide a mixture of sand and soil. I have hatched and raised several generations of turtles in my current pond. Some of the best varieties of turtles to keep in the pond are painted, red-eared and yellow-bellied sliders. These varieties are common and tend to overwinter just fine in my outdoor pond.

Turtle Pond Construction

When constructing a pond meant for turtles, here are some things to consider. Turtles don't need or like big waterfalls or fast-moving water. When in nature, you

mostly find them in calm, shallow water with decent vegetation cover. I try to mimic this by having a bog filter for my main filtration. It generates about 2,000 gph and has enough flow to gently move the water. It also has a large surface area to digest all the waste generated by

Some of the best varieties of turtles to keep in the pond are painted, red ear and yellow-bellied sliders. These varieties are common and tend to overwinter just fine in my outdoor pond.

the turtles. I have a large bubbling rock on the backside of my design, which is a great focal point and adds some circulation back to the wet well, where the pump is stored.

I would not recommend using skimmers in the design. Turtles are curious creatures and will get in the skimmer and find the pump. The



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Big Mama, a yellow-bellied slider (left) is more than 20 years old. Having a few goldfish in the pond (right) helps clean up food scraps.

outcome will not be pretty. Always use wet wells for your in-pond pump placement! I am a rock and gravel guy in all the ponds I build; I want them to look totally natural. I have large outcroppings for basking and a gravel bottom. Thanks to the turtles, a fair amount of sand has settled on the bottom as well. The water is crystal clear all the time. The average depth of the pond is 12 to 24 inches.

Turtles and aquatic plantings do not tend to mix well. Turtles will eat and shred any waterlilies you plant. Marginal plants will tend to get crushed and trampled as well. I use Aquamats in my turtle pond. They're great places for the turtles to hide and climb on and are practically indestructible. Unfortunately, they have been discontinued. At some point, I might experiment with large mop heads that

could serve the same purpose.

What to Feed Them

Turtles love duckweed for their vegetative appetite. I have several tanks that I hold marginal plants to sell. These tanks always get plagued by duckweed. I harvest the duckweed and cover the surface of my turtle pond with it. Within days, all the duckweed is gone. A

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Jake, my Vizsla pup (left) likes visiting the turtles. Tex naps indoors (inset) while his friends (right) rough it outside for the winter.

well-rounded turtle diet also includes a mix of koi pellets that I feed to my fish, mealworms, earthworms and shrimp. Their favorite guilty pleasure is Koi Krunchies by Aquascape. Hand-feeding the turtles these little treats is always fun; they will even reach up to you for their treat.

Healthy turtles are always hungry! I feed my turtles once or twice a day. I keep several large goldfish in with my turtles. They help clean up any scraps the turtles leave behind. The turtles don't bother them; they live in harmony.

Overwintering

Around the end of October, I start preparing the pond for winter. I disconnect the pump to the bog filter. To keep a hole open in the ice, I add an aerator and heater to the pond. This is the same process you would undergo to winterize any backyard pond. Once the water temperatures are below 50 degrees, the turtles slow down and get into hibernation mode. I stop feeding at this time. I do see them occasionally come up to bask.

Generally, all the turtles can stay outside. They will burrow into the pond bottom. Turtles have the unique ability to absorb oxygen through their skin and their cloaca. They can survive the coldest months under the ice.

I leave all my male turtles and a few females outside for the winter, but I bring my favorite female turtles

inside. I have a large, heated tank with lighting in my garage. All the males stay out because they tend to become more aggressive and try to mate with the females. This has caused damage to the eyes and necks of some females in the past. I like keeping my female turtles fat and happy. The guys have to rough it.

In April, I do a complete drain and rinse of the outside pond. Power washing is not needed. In early May, I reintroduce the female turtles to the outside pond and slowly start to feed them.

The baby pool I started with years ago has now become the Taj Mahal for my turtles today! ☺

About the Author



George Janowiak is a Master Certified Aquascape Contractor. For the last 20 years, he has been designing and installing some of Chicagoland's finest custom ponds. A professional pond-building company, Gem Ponds Inc. has installed over 500 water features. They specialize in residential sales and service of ponds and pond-less water features.

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Beating the Pond Bugs

Using fish and plant quarantine to prevent disease

| Safe **Quarantine** |

by **Jamie Beyer**,
Midwest Waterscapes

Most of us who have been in this profession for a long time have had the experience of adding newly purchased fish or plants to an existing population, only to see them start dying within a couple of weeks. Holding new fish or plants in a quarantine tub for a length of time before placing them in the pond is crucial for avoiding this problem. Yes, you can play Russian Roulette and take your chances of not quarantining newly acquired fish or plants, but sooner

or later, a disease will be introduced. Dreadful experiences like this are on my mind every time I consider adding fish to an existing population.

No matter how healthy a fish looks, it can still be a “Typhoid Mary” and carry a disease or parasite. All fish and plants sold by wholesalers and retailers can potentially have diseases; no business is immune to this. Commercial operations should routinely practice quarantining, because new fish are constantly being brought in from many sources. But in reality, most retailers (and some wholesalers) do not have the facilities to quaran-

tine, so their whole setup could be contaminated. Even though they mean well, they are relying on their sources to supply healthy fish, which cannot be guaranteed. The fish are also stressed, which can contribute to the outbreak of a disease that may have been sublethal prior to purchase.

When to Quarantine?

There are times when quarantine is not necessary, like when you add fish or plants to a pond that does not have an existing population of fish, or when you absolutely know the history of the fish you are

acquiring. For instance, a friend when necessary. The amount of raised them and wants to part salt or other treatment will be with some of them. This may be so much less than if you were

Another good reason for putting your newly acquired fish in a quarantine container or tub is that it is so much simpler to treat the fish for a disease when necessary.

be OK, but even then, make sure the friend has not recently lost fish or added any new fish to their population. Finally, you do not necessarily need to quarantine when adding to an existing population of low-quality or low-value fish. But even then, it is sad if the fish start dying.

Another good reason for putting your newly acquired fish in a quarantine container or tub is that it is so much simpler to treat the fish for a disease

adding it to an entire pond. Also, some treatments may be toxic to the plants or some parts of the pond's ecosystem.

How Do I Do It?

OK, you have decided to quarantine — what next?

It's worth noting that a lot of fish are lost in the quarantine tank due to insufficient accommodations. So, put a lot of effort into these temporary quarters. The quarantine aquarium or tub needs to be a



These 100-gallon livestock tanks serve as perfect temporary quarantine containers for smaller fish. Good filtration with aeration is important.

minimum of 20 gallons, depending on the size, number and kind of fish. Stock tanks are great containers for our pond fish and are easily stored when not in use. They come in sizes up to 600 gallons and larger. My philosophy is, the bigger the better, and as large as your space and

dedicated to that container or disinfected before touching any of your existing pond's water or equipment. Ninety-one percent isopropyl alcohol can be used on your hands by simply spraying them with a handheld sprayer. Other equipment can be treated with this or other commercial

In my experience, the optimal length of time for quarantine is six weeks. This is a long time, but some diseases will not show up until the period is almost over. A minimum of two weeks is essential, but try to do the six weeks.

budget can allow — err on the side of too big, if you can.

You will want to circulate the water with an air pump or water pump. Keep everything well circulated and filtered. The practice of water changes every two or three weeks is a critical step in maintaining good water quality. (Please refer to my article "Overwintering Pond Fish Indoors" in the January/February 2013 issue for setting up and maintaining fish in a container.)

Isolation of the container's water is essential for the quarantine to be successful. Any nets, buckets and other equipment — even your hands — must be

disinfectants. Large amounts of organic matter and debris that can potentially accumulate on equipment will need to be removed before disinfecting.

In my experience, the optimal length of time for quarantine is six weeks. This is a long time, but some diseases will not show up until the period is almost over. A minimum of two weeks is essential, but try to do the six weeks.

Which Treatment Do I Use?

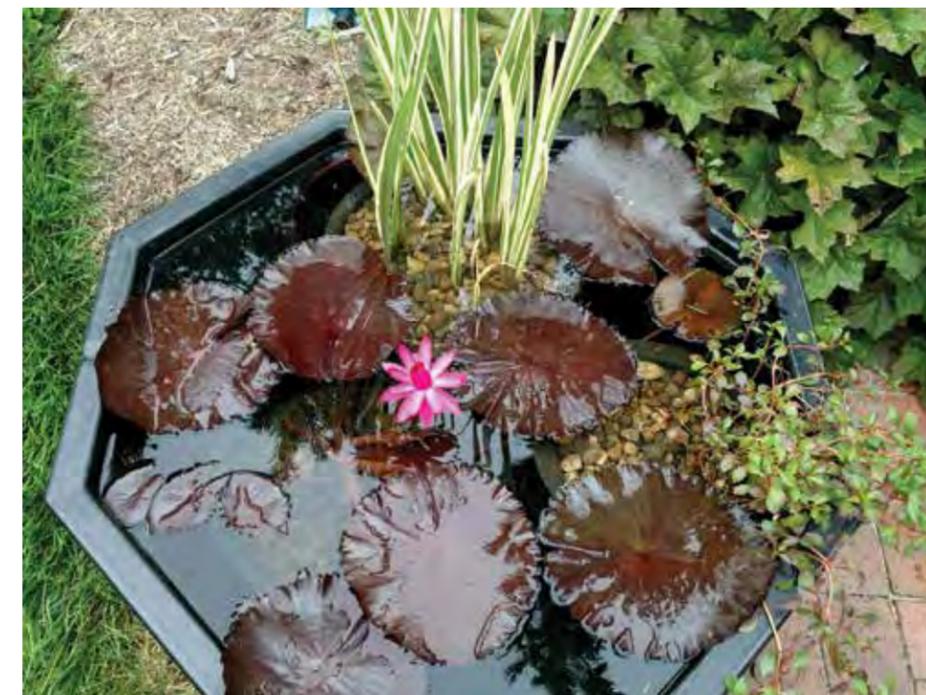
Identifying what disease is present is a crucial first step in determining which treatment to use. I do not have enough space here to address how to determine

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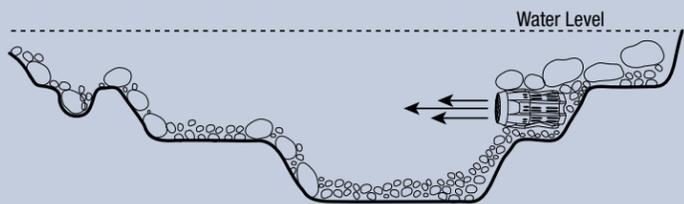
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the type of disease and its treatment; there are many other resources detailing how to do this. For the most common ones, you can add pure NaCl salt (without iodine) to all quarantine containers. Add pickling and canning salt or pure water softener salt (without any additives) at the rate of 1 pound per 100 gallons. This is the same as 10 teaspoons per 10 gallons or 1 gram per liter. If the fish show signs of a disease, increase the dosage rate of salt to a total of 3 pounds per 100 gallons. Do this over an additional two days at 1 pound per day.

Add gradually. The fish really enjoy this level of salt in their water. It allows them to more naturally control osmotic pressure within their bodies. This level will harm the plants, however. You can add more — up to 7 pounds per 100 gallons — but only for 10 days or less. A majority of diseases will be cured at these rates. Of course, there are some diseases that will not be affected by the addition of salt.

Containers and tubs should be covered with a heavy top, like weighted 1-by-1 welded wire or something similar. Koi, for example, really like to jump, especially when they are used to a larger body of water. Countless times I have witnessed a lightweight cover easily getting knocked off the container when a fish jumped.

Set up the container in a shady spot, or keep plants in it. If in sunlight, adding some filamentous algae (string algae) works great for

quarantine setups. Yes, there is a use for this type of algae! The algae serve very effectively as a veggie filter. Water hyacinths or water lettuce, where legal, will also work very well for this purpose.

Catering to the Koi

If possible, add a dither fish to the container with your newly acquired fish. This is a fish that you own that is acclimated to your water and you being around them. Therefore, they will not be as timid during feeding. A dither fish will reduce the stress on your new fish simply by being calm. The dithers show them the way, so to speak. This is a fish that, having been exposed, may come down with a disease, and you may therefore lose; so, choose a fish that you can part with. Common aquarium fish that are not timid work well for this.

Do not feed the fish for the first week or two. They will most likely be spooked anyway and may not want to eat. Uneaten food rotting in the water is a fish killer, especially in these relatively small containers. Make sure that any uneaten food is netted or siphoned out. Having a bare-bottomed container is essential to be able to do this.

Plant Problems

I have mentioned the possibility of plants transmitting a parasite or disease to an existing population of fish. Most of the time, it is a parasite when plants are involved, but a disease can also be spread to fish. Plants that are purchased from a source where they come out

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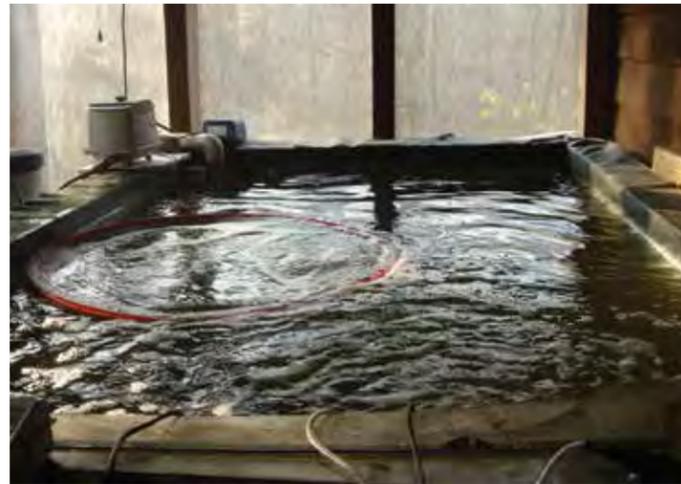
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This large indoor quarantine tank holds approximately 400 gallons and is set up with good filtration and aeration. This is suitable for larger fish but needs to be covered to prevent them from jumping out.

of a fishless pond or container may eliminate the necessity of quarantining or treating plants. However, there are situations where an invasive plant is hitchhiking on the purchased plants, and they can accidentally be brought into your pond. Simply washing and inspecting all plants is crucial for reducing this possibility.

Even in more temperate climates where they are killed by freezing temperatures, water aphids can be inadvertently reintroduced by adding plants that are infested with them or their eggs. So, in other words, plants should also be quarantined. A two-week period is all that is necessary to quarantine plants.

Or, instead of quarantining, plants can be submersed in a 37-percent formalin solution mixed at the rate of 2 to 3 cubic centimeters per 10 gallons of water. Your pharmacy should have formalin in this concentration. Immerse the plants completely (even floating plants) for three to five hours. Stir the plants in the dip

every 30 minutes, or simply place an air stone in the dip tank. The floating plants will need to be held underwater with a weighted net. Then, rinse the plants in regular tap water, and you should be able to place them directly into your pond with fish.

Spread the Word

There is a lot more to disease prevention than simply buying good-quality fish from reputable sources. Countless times, pond owners have asked me what they should do when they are experiencing dying fish.

First, you should identify the disease or parasite problem, followed by the possible treatments. Although in my mind I know the problem could have been avoided had they quarantined, this is a sensitive time to say it. I usually wait until we have treated and gone through the huge effort to save the remaining fish before educating them about quarantine procedures. Somehow, we need to convey to our clients the vital importance of quarantining before they have experienced this. ☺

About the Author



Water gardening has been a passion of **Jamie Beyer's** for more than 50 years, and he has worked on more than 1,000 ponds. He owns several very large ponds with

many different kinds of water plants and fish. Jamie has a master's degree in fish and wildlife biology and is a lifetime Master Gardener. He is the founder and former president of the Central Iowa Water Garden Association. He has a broad background in fisheries, the dynamics of water, horticulture and aquatic and wildlife ecology.

He currently owns Midwest Waterscapes, a consulting and installation business, where he specializes in water gardens, fountains and ponds.

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by **Kent Wallace,**
Living Water Solutions

In early 2018, I received a call from Anthony in Aliso Viejo, California, who needed assistance designing his pond. Anthony was in construction and had acquired some glass panels. He wanted to build a pond with windows on the sides. Anthony and his wife Linda's backyard was small, so a raised pond would be a good idea. However, this raised pond would have to be several feet tall.

SERIES:
Best Pond Practices

This is an installment of an ongoing, multi-part series. Be sure to watch for further installments in future issues!

Anthony sent me several pictures of the concreted area he wanted to build on just in front of the back wall. He had three panels — two long ones and one shorter one. The long ones were 6 ½ feet, and the short one was 4 ½ feet. Anthony decided at first to only use the two long ones on the front side. This would make the pond about 14 feet long by 5 feet wide at a depth of 3 ½ feet. The space he had to work with, plus filtration volume, would give him a pond just under 2,000 gallons.

Cutting Concrete

With that information, I worked up a 3-D drawing he could start with and supplied the equipment. In the beginning he didn't want to



Above are before (left) and after (right) shots of the poured concrete forms for the walls.



The window rails (left) are in, and the surface is parged. Then, the surface is coated with Polyurea (right) and ready for glass.

cut into the concrete floor any more than he had to, but after receiving the equipment and looking at the retro-drain, he decided to cut the floor for an in-floor, 3-inch drain. This was a good change. I supplied a Waterway Renegade skimmer with the large basket for the in-wall skimmer and two LWS in-floor

air diffuser cups with 5-inch diffusers cut into the concrete floor for aeration on a timer.

The two air diffusers are supplied by an air pump he already had. The 3-inch bottom drain flows to a 55-gallon drum radial separator sitting just outside the left wall. A WLim Wave I 1/6

Horsepower pump pulls from the 3-inch bottom drain through the radial separator and from the skimmer pushing the water to the opposite end, where the filtration was to be located.

Splitting the Spills

The pond was to have three spills:

one on the right end and two along the back wall. Having only spills as returns meant there wouldn't be enough turbulence for a good dissolved-oxygen content. To correct this, I split up the biofiltration into two tanks, one as an upflow sand and gravel filter for fines polishing, and the other as an air-driven

dilution reactor (ADDR) for oxygenation, powered by a Medo 60-lpm air pump. The right spill would flow from the sand and gravel filter, and the two on the back wall would flow from the dilution reactor. An aerated biofilter can flow more volume than an equally sized trapping filter, such as the sand

and gravel filter. Two return fittings were installed in the end wall to bypass any excess volume without restricting the pump. The 57-watt LWS ultraviolet light is mounted inside the sand and gravel filter in a down-flow configuration for easier mounting and hiding.

Anthony made a few good changes

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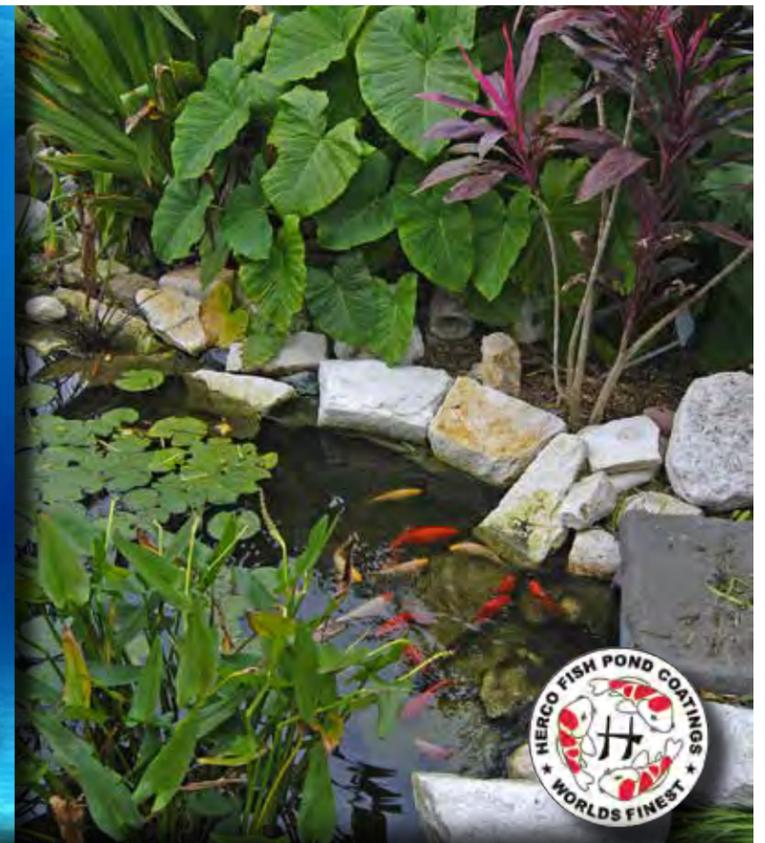
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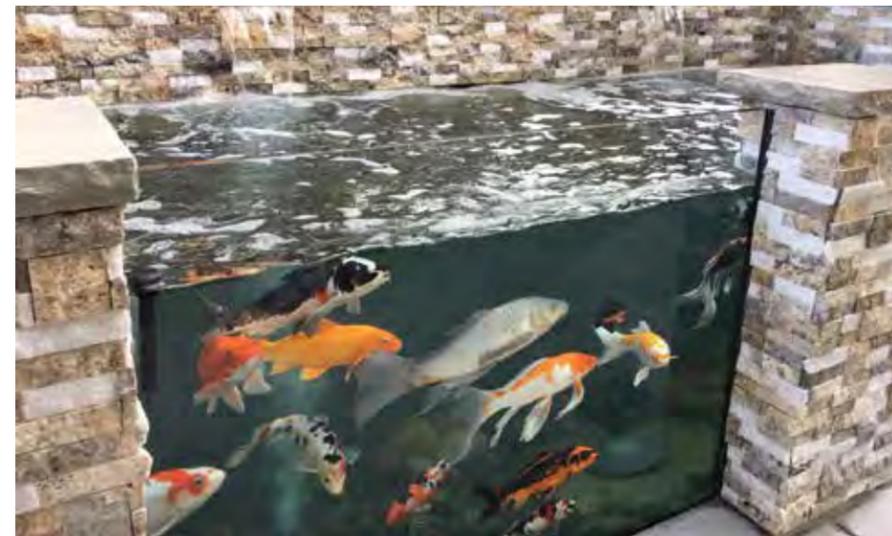
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along the way in addition to the drain swap. He moved the prefilter and pump pad farther away and closer to the fence on the left side. This gave him room to install the third shorter piece of glass, giving him a viewing opportunity from the left end. He built the end wall and formed it at a 45-degree angle, which

created an aesthetically pleasing shape against his back wall.

The walls were formed and poured in place by Anthony's crew, who did an amazing job. Paul Parszik of Artisan Aquatics was called in to apply the polyurea and advise on the window installation. Paul is one of the best in the

business at preparing window channels and sealing them to the wall construction. The windows were set in welded, U-shaped L-channels bolted to the concrete, and the polyurea was applied over the concrete and into the channel.

Prior to the polyurea application, the surface must be parged with some-

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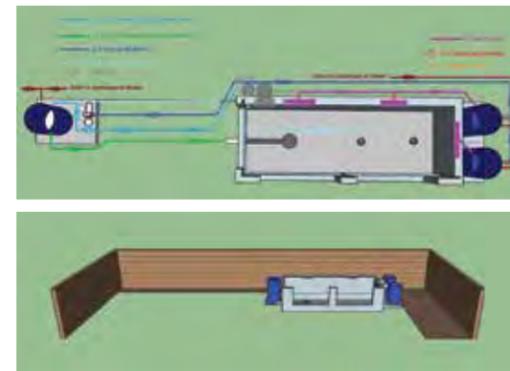


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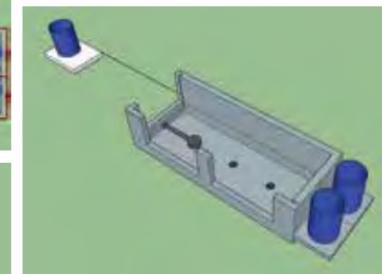
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The initial 3-D drawing for the project are shown above with plumbing layouts.



thing polyurea likes chemically. Paul has requested Bond-Kote in the past, but that product has recently become unavailable. Lately he's been using Proline Coating's ProSurfacer, and it works well with the polyurea. Once the polyurea was applied, the glass panels were sealed in place with Dowsil 795, formerly Dow Corning 795, which is an architectural-grade silicone sealant. The glass panels are 3/4-inch thick Starfire lead-free tempered glass. Starfire glass is crystal clear and offers amazing bril-

liance with little or no discoloration.

One LWS LED light fitting is installed in the right side with a Melody Blanco LED 12 Volt light. Anthony chose CMP Brilliant Wonder LED lighted waterfall spills for the sheer descents.

The glass-paneled raised pond gives Anthony and Linda's small backyard more depth, opening it up with a beautiful view. When done correctly, window ponds can be an elegant pleasure in any backyard space. ☞

About the Author

Kent Wallace was born and raised in Las Vegas. Kent spent most of his adult life in the automobile industry at independent shops and dealerships, including his own shop as a racecar fabricator at age 24. Then, in 2001, a neighbor asked Kent if he could build her a koi pond like the one Kent's father had.



From that point on, pond building became his new passion. That first pond he built was submitted to Better Homes & Gardens magazine and won Best Courtyard Nationwide in their special-interest publication.

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Another Great Year at the WGE

Time well spent learning and getting reacquainted



by **Lora Lee Gelles**,
POND Trade magazine

Another year, another great Water Garden Expo. The tag line on the program said, "Learn, Network, Re-energize." Well said! There were lots of new faces this year, along with all the regulars — a full house!

Things were off to a good start on Wednesday, with hands-on sessions, as described by Mike Miller on the opposite page. On Thursday and Friday, there were many great seminars to choose from. Dave Duensing, Frayne McAtee, Art Hantla, Kevin Dougherty and Rick Weidman were just a few of the speakers.

Besides seminars, there were plenty of vendors to visit. It's always fun to walk around, meet new people, get reacquainted with those you already do business with and check out new products.

Once again, Pondliner was nice enough to let POND Trade announce the winners of our third annual Water Artisans of the Year contest. If you didn't catch the winners, you can catch the proud winners with their trophies on our website.

Thanks to Pondliner for a great Expo. If you've never been, make plans to go next year! 



Kicking off Wednesday Round-Robin Style



By *Mike Miller, Pond Pro Shop/Pondliner*

In an attempt to outsmart Mother Nature, Pondliner adopted a round-robin style of short introductory sessions on five different topics or products for the Wednesday event to kick off WGE 2019. Those who had suffered through the ice and snow of previous Wednesdays were thankful to be inside this year.

The topics covered were (1) Atlantic's new LED lighting and how to use it, (2) Atlantic's new Copper bowls and how to install them, (3) OASE's new Aqua Eco Expert and Aquarius Eco Expert fountain pumps with Easy Garden Control (EGC) Technology, (4) OASE's water entertainment series including Water Jet Lightening, Quintet and Trio, and finally, (5) Carlisle's seaming and penetrating EPDM liner methodologies. The participants were divided into small groups, which moved from session to session, and since each session was approximately 45 minutes, there was plenty of time left for sharing and discussion. This style of presentation is more conducive to adult learning and allows for sharing knowledge and fostering an open environment for questions.





Show us Your Trophies!

The 2018 Water Artisan of the Year winners present their new "prized" possession



Awarded!

The Water Artisans of the Year winners were announced on Thursday morning. Two honorees were present. Max Taylor of Magnolia Ponds & Water Gardens (above) won Best Under 15k. Ryan Bunting (below) of Big Boulder Pond was the runner-up in the Best Under 15k category and received a framed certificate.



Gregg Sawyer, Best Waterfall



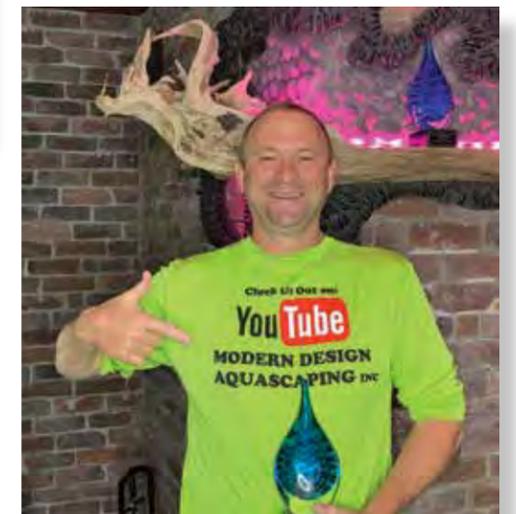
Tony and Jason Lenox, Best Hardscape Combo



James and Max Taylor, Best Under 15k



Weston Zimmerman, Best Pondless



John Adams and team, Most Naturalistic



Congrats!

Living the Pond Life!

By Lora Lee Gelles, POND Trade Magazine

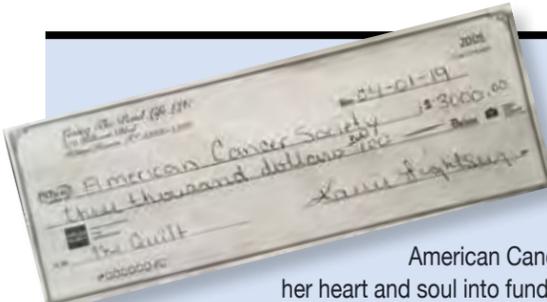
Karrie and Lloyd Lightsey sure were busy getting donations rounded up for the American Cancer Society. Karrie is a cancer survivor, and she puts her heart and soul into fundraising and donating to the cause.

Last fall, Karrie gathered shirts with logos from pond builders and retailers and had them made into a beautiful collage that her sister then sewed together to make a beautiful quilt. Karrie manned the "Living the Pond Life" booth, where she sold tickets for a chance to win it.

On the last afternoon of the Expo, she pulled the winning ticket, and Melissa McCauley of Ponds-N-Lilies was named the winner. \$2,000 worth of tickets were sold for the quilt.

Lloyd was busy, too. He has been growing out his beard, and he auctioned off the clippers to the highest bidder. BJ Linger won the honors, and Randy Stewart of Pondliner matched him. Another \$1,000 was raised, and now, Lloyd looks like a whole new man!

It was a real eye-opener when Lloyd asked anyone who has had cancer or has known a friend or loved one with cancer to stand up. More than half the room was standing. It's an awful disease, but these warriors are doing their best to raise money to defeat it. When it was all said and done, a total of \$3,000 was raised and donated to the American Cancer Society.





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To learn more about Aqua-5 Plus, Aqua-5 Reef and original Aqua-5 Dry, and for information on wholesale and distributorship opportunities, visit www.env-alt.com.

Kasco Redesigns 3/4 & 1-HP J Series Fountains

Kasco has redesigned the 3/4 and 1-Horsepower J Series fountains. We have enhanced the housing, impeller and nozzles to create an even better product. Both flow rate and pattern size have been improved without increasing amp draw. Assembly and nozzle changes are faster and easier!

Using advanced engineering design tools, our team was able to significantly increase fountain performance. This dramatically improves aesthetic appeal without increasing operating costs or fountain pricing. In fact, we're passing along a cost savings to you of up to 24 percent on the 1-HP fountain (depending on cord length). Existing 3/4 and 1-HP J Series fountains can be updated easily to the new design with optional conversion kits.



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Kasco J Series decorative fountains provide versatility, performance and reliability. Ranging from 3/4 HP to 7.5 HP, there is a J Series fountain perfect for any sized pond or lake. Our corrosion and clog resistant technology offers dependability that is unparalleled in the current marketplace. J Series decorative fountains come as a complete package with motor, float, mooring lines, multiple nozzles and power cord all included in the price.

In addition, we offer a set of premium nozzles for the 2-HP and larger J Series fountains available for purchase separately. These stunning premium nozzles come in Madrone, Magnolia, Mahogany and Palm patterns.

Kodama Koi Farm Introduces New PCR Device for Testing Imported Koi

Kodama Koi Farm has introduced a new polymerase chain reaction (PCR) device to test for Koi Herpes Virus (KHV) on-site at their farm. This allows Kodama Koi Farm to run more tests in shorter times to assure the safety of koi that they import and distribute from Niigata, Japan.

"KHV has been the most dangerous disease in the koi industry," said Taro Kodama of Kodama Koi Farm. "It kills 70 percent or more of the populations in ponds, and the survivors will become carriers. The recent outbreaks in Japan have increased health concerns of Japanese koi among hobbyists as well as professionals around the world."

A PCR machine is one of the techniques to detect the presence of KHV virus DNA. PCR is available at several laboratories nationwide, but the turnaround time is about one week on average, and the costs of testing limit the quantity of samples that can be tested for KHV outbreaks.

"At Kodama Koi Farm, we will continue to use third-party laboratories for the final proof of KHV," explained Kodama. "The introduction of this PCR technology to

the farm now expands our opportunities to catch outbreaks early and increases the overall safety of our Japanese koi."

Currently there is no cure for KHV, and the infection cannot be treated. Prevention,



KODAMA KOI FARM

proper quarantine techniques and consistent testing of koi are the tools used by Kodama Koi Farm to ensure the safety of koi from the deadly virus.

For more information on the recent outbreaks of KHV in Japan and how Kodama Koi Farm has responded to the situation, please read our blog at www.kodamakoifarm.com/managing-japan-khv-outbreak/.



Franklin Electric Celebrates 75 Years of Moving Forward

Franklin Electric is proud to announce that 2019 is the company's 75th anniversary. A lot has changed at Franklin Electric since E.J. (Ed) Schaefer and T.W. (Wayne) Kehoe founded the company in 1944 in Bluffton, Indiana. Since then, we have grown from a small motor manufacturing company into a leading global provider of systems and components for moving water and fuel. What hasn't changed are the core values we all share. We remain focused on our customers and dedicated to delivering on our Key Factors for Success. 2019 will be a celebration of all we've accomplished in many places and for many customers around the world.

Named after Benjamin Franklin, a pioneer in electrical engineering, Franklin Electric's core is the world's first reliable submersible electric motor for water systems, which has remained a staple of the water well industry. Seventy-five years later, we continue to manufacture and distribute improved versions of this unrivaled motor design all around the world. We have expanded our expertise to create innovative solutions including pumps, electronics and adjacent products that address modern industry challenges and serves our customers' needs.

New OASE Smart Technology Pumps and Filter Now Available in North America

The highly anticipated ProfiClear Premium Compact-M filter and AquaMax Eco Expert pumps have been successfully implemented in Europe and are now available in North America. In addition to working with the new Easy Garden Control System (EGC), the pumps and filter qualify for OASE's Clear Water Guarantee.

The ProfiClear Premium Compact-M is a powerful self cleaning filter for ponds up to 21,000 gallons. The Moving Bed System with Hel-X 13 biomedica offers effective nutrient and pollutant decomposition in the water and a large surface area for the settlement of microorganisms and beneficial bacteria. The compact drum filter requires very little maintenance and seamlessly integrates the OASE Bitron C UV Clarifiers.

AquaMax Eco Expert pumps feature a robust stainless steel intake screen that displaces coarse debris particles up to 11 millimeters in size. The AquaMax Eco Expert pumps feature Environmental Function

Control (EFC), an automatic system shut-off that prevents damage in the event of a running dry or blockage. They also feature patented Seasonal Flow Control (SFC), which allows for intelligent and environmentally-conscious regulation of flow rate and pumping height based on water temperature.

These products are part of the new revolutionary EGC system, which facilitates convenient control and operation of the connected products from anywhere in the world using the OASE Cloud service via tablet or smartphone app. The system also provides feedback concerning operation status, power consumption and overall performance diagnostics. This data can then be analyzed, formatted and stored on the OASE Cloud. If any technical or performance problems occur, the homeowner or installer can be notified via email so the issue can be resolved.

Learn more at www.oase-livingwater.com



Aquatic Legend Eugene Danner Passes Away at 93

The industry lost a legend on March 28, 2019. Mr. Danner was still active in the business until four years ago. He had a long history in the water garden business.

Eugene Danner Sr. started planting the seeds for Danner Manufacturing in 1934 while working in the cellar of his home on Seneca Avenue in the Ridgewood district of Brooklyn, New York. While holding a full-time job as a factory manager, Eugene found great pride creating the Danner business on his time off from his regular full-time job duties.

Around that time, the aquatics hobby began to grow, and this group of people who kept fish as pets were known as "Fish Fanciers." Eugene was often asked if he could make water and air pumps for this newfound hobby. From there, the "Supreme Aquarium" brand was born, and the original Supreme Dynamaster Air Pumps were introduced, which quickly became the standard to which others aspired.

At the end of World War II, Eugene's son came home from active duty and opened the first official Danner Manufacturing factory on Woodbine Street in Brooklyn. He took on his Father's growing hobby as a full-time business. At this time, Eugene Danner Sr. quit his job as a factory manager and started working full-time with his son to create what is now known as Danner Manufacturing. As the years progressed, Eugene and his son upgraded and opened up a new state-of-the-art factory in 1960 on Summerfield Street in Brooklyn.

In the 1960s, all three of Eugene Danner Sr.'s grandchildren started helping in the factory, and in 1974, the Danner family moved its operations to a new facility in Islandia, Long Island (New York). In 1987, Eugene passed the torch on to his son, Michael who ran the business until 2005. During this time, Michael's sister, Catherine Danner, designed and developed many award-winning package designs throughout the 1980s. Their sister, Rosemarie, is the current CEO of Danner Manufacturing and continues to carry on the great Danner legacy and tradition. Over 80 years later, Eugene Danner Sr's vision carries on, employing and manufacturing within the United States. The sophisticated, energy-efficient, magnetically driven hybrid pumps continue to be popular products with thousands of satisfied and loyal customers all over North America.



New Advanced RGB Pond and Water Feature Lights from EasyPro

Brilliant LED lights are waterproof and feature stainless steel housings, mounting brackets and hardware. Lights, controllers and cables have quick-connect plugs. A digital timer/controller has a remote control that works up to 1,000 feet away. Multiple controllers can be synced with one remote control. Lights produce an array of vivid colors.

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Matala Introduces New Air Diffuser Base

This new air diffuser platform allows you to mount air diffusers firmly at the bottom of the pond and keeps them up out of the mud.



The air diffuser platform is designed with a hollow base that can be filled with sand or gravel. Choose the number of disc diffusers for your installation needs.

The Matala EPDM disc diffusers are designed for industry heavy-duty installation. Precision-perforated I-shaped slits open when airflow is present and close when airflow is stopped, which increases the slits' resistance from tearing and stays cleaner longer. These diffusers offer the lowest back pressure in the market, adding less than 6 inches of water-depth back pressure, allowing you to utilize your air pump in the most efficient way. All model types comes with a single 3/4-inch PT female threaded outlet connection.

The air diffuser bases are available in four models. A 12-inch EPDM disc diffuser is also available. The flow rate will be almost double. www.matalausa.com.

To see full press releases and additional news items, visit www.pondtrademag.com/category/trade-news



Join the IWGS In France for the 2019 Symposium!

An optional pre-symposium will take place in Paris and Giverny from August 21 to 23 for those who want to be immersed in the world of Claude Monet. You will visit the remarkable Orangerie Museum in Paris, which is a shrine to Monet's huge waterlily murals, and then spend the day in Giverny touring Monet's actual home and water garden, visiting the impressionism museum and hearing from guest lecturer Caroline Holmes, who is a British garden historian, consultant, author and lecturer.

The main symposium will be located at the source of Monet's legacy, the nursery whose colorful waterlily hybrids turned Monet's pond into his signature subject. Located in the tiny village of Le-Temple-sur-Lot, the nursery created by Joseph Bory Latour-Marliac has been in continuous operation since he founded it in 1875. It is here, at the birthplace of contemporary water gardening in Europe, where you will stay to share your passion for water gardening in 2019.

The educational sessions will take place on Saturday and Sunday at venues around the village and at the nursery, where we will be treated to some fascinating keynotes, presentations, panel discussions and workshops. Guest Lecturers include Dr. Nopchai Chansilpa of Thailand, Florian Henaux and Thierry Huau of France, Carlos Magdalena of London and Rich Sacher of the United States. Neighboring gardens and sight visits — including fantastic water gardens in the neighboring Périgord region — are also part of the program, so you will not only learn, but explore as well!

On Monday morning, you will move toward southwestern France's most vibrant and famous city: Bordeaux. You will visit the vineyards and have lunch around the famous and picturesque wine producing town of Saint-Emilion. Bordeaux is also home to at least two other wonders: its botanical garden, whose excellent aquatics section we will visit, and its French cuisine! France has two proper capitals of gastronomy, Lyon and Bordeaux, so we couldn't dream of a better location than Bordeaux for our gala dinner on Monday evening.

Following the main symposium, informal post-symposium activities will be offered from Tuesday Aug. 27 onward. For more information, visit www.iwgs.org and register online today!





Devastating Fire Doesn't Stop Fitz's Fish Ponds

On February 23, 2019, Fitz's Fish Ponds LLC suffered a devastating fire at their new location at 373 Route 22, Green Brook, New Jersey. This 11,000-square-foot location housed the offices, retail store and warehouse for the entire company. The fire was large and spread so quickly that the fire departments and first responders could not extinguish it, and the company lost everything. Fitz's Fish Ponds had just moved into this location in October 2018.

"We put everything we had into building our new, exciting showroom, retail store and warehouse. Seeing our business suffer 100-percent loss was difficult to comprehend," said company owner Brian Fitzsimmons. "The blessing in all of the chaos was there were no injuries to our team or any of the first responders who worked hard to put out the fire."

After taking a day to accept the reality that everything was gone, Fitzsimmons and his management team found an office space a mile away and started to regroup and rebuild. One of the immediate concerns was to find a new headquarters for Fitz's Fish Ponds and get settled before the arrival of the imported Japanese koi that are scheduled to arrive in April.

Prior to the fire, Fitzsimmons had started conversations about possibly opening a pond and garden center at the former Fairfield Garden Center location. Since the fire left Fitz's Fish Ponds without a retail space, the decision to move forward and open a retail pond supply and koi store was easy. This spring, we are excited to announce that our new company, Fairfield Fitz's Fish Ponds LLC, will be opening at 445 US 46 West, Fairfield New Jersey (formerly Fairfield Garden Center).

We are excited to announce that we are opening both retail stores on Friday, March 29 with limited stock. On Friday, May 3, our stores will be complete with the arrival of our shipment of Japanese koi! It's been a rough couple of weeks, but we are thrilled to be back and serving our communities!!

We want to let everyone know that we are so grateful for all the kind words of encouragement and support we have received from friends, family, clients and the pond community all over the world. Thank you for the continued support.



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