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FEATURES

8 Breaking Ground in Australia
It’s enormous, it’s sparsely populated, and it’s the driest inhabited continent on Earth — Australia sounds like the perfect place for a pond business, right? Patrick Handley sure thinks so! The founder of Waterscapes Australia shares the unique challenges and rewards of Down Under pond construction.

14 Business Tips from a Plant
What can a plant teach you about the pond business? If it’s the Giant Water Lily, quite a lot! Strong, well-structured and built to grab attention, Victoria amazonica is the perfect business model in more ways than one. Lily and lotus expert Paula Biles explains why.

21 30 Years and Still Growing
When Jacklyn Rodman got into the industry, water gardening was little more than an afterthought for eccentrics who wanted a fancier landscaping job. But a lot can change in 30 years, and Sunland Water Gardens has been there for all of it. After three decades of evolution and growth, see why now is a better time than ever to invest in water!

24 COVER — The Art of the Waterfall
Be the water! When it comes to building a natural-looking waterfall installation, that’s the first step … but it’s definitely not the only one! From pumps to filters to boulders and walls, Freddie Combas has the perfect recipe to turn a “Why’d they build that?” eyesore into a “Wow!” waterfall.

33 Industry Best Practices
The Water Features and Lake Management Common Interest Group met in Phoenix in November. And if you’re a pond lover, builder or buyer, you’re going to want to know what they discussed! Read Poul Amos’ report to find out what best management practices will be guiding our industry in the years to come.

34 Headache or Opportunity?
You’re a master at backyard wonderlands and a genius with waterfalls … but when a customer comes looking for a two-acre pond, do you turn and run in terror or dive in headfirst? Never fear, with John Redd’s tips and tricks, those large-scale pond installations can become the bread and butter of your business!

39 World’s Best Blooms
Lemon Meringue, Sangria and Milky Way. No, it’s not the typical POND Trade staff lunch — it’s a few of the winners at the IWGS 2014 New Waterlily Competition! Beauty was in abundance in Denver as hybridizers from around the world brought their Hardy, Day-Blooming Tropical and Intersubgeneric water lilies to be judged by an international panel. Check out the story to see the results and the beautiful photos!

40 Let Bacteria do the Work!
Bacteria is an unavoidable element of any ecosystem, and sometimes it can wreak havoc on your water. But if managed effectively, bacteria can become the most powerful filtration system in your pond! Kent Wallace offers an in-depth guide to using biofiltration to enhance the health and beauty of your water feature.

44 Koi in the Balance
When Richard Heimberger was asked to look at some koi suffering parasitic infection, he had no idea the checkup would result in a job at one of the largest koi habitats in Chicago. In the five years since that first consultation, Heimberger has taken on full responsibility for the hundreds of koi in Dan Webb’s impressive complex.

49 Miracle Water is Possible
For the experts at Kloubec Koi Farm, water that’s simply “clean” just won’t cut it. The demanding standards of koi purists call for sparkling, crystal clear water, and that means Bacteria House Filter Media. Ellen Kloubec explains how this “miracle media” has saved her farm time and money — and made for some very happy, healthy koi.
Upcoming Events

January 14 - 16 MANTS 2015
Baltimore Convention Center
Baltimore, Maryland www.mants.com

January 21 - 23 WINTERgreen 2015
Gwinnett Center
Duluth, Georgia www.ggia.org

February 25 - 27 Water Garden Expo
Heart of Oklahoma Exposition Center
Shawnee, Oklahoma www.wgeexpo.com

March 7 - 8 Koi Club of San Diego - 20th Annual Koi Show & Water Garden Expo
Del Mar Fairgrounds Activity Center
San Diego, California

March 13 - 15 Central Florida Koi Show
International Palms Resort
Orlando, Florida www.centralfloridakoishow.org

April 11-12 Bear Creek Mountain Resort
Holmes Farm Pond and Pet Trade Show

August 26 - 27 Holmes Farm Pond and Pet Trade Show
Bear Creek Mountain Resort
Macungie, Pennsylvania
877/412-327
www.holmesfarm.com

August 21-23 Hardscapes and GIE+EXPO
Kentucky Exposition Center
Louisville, Kentucky

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New Year, New Site, New Ponds!

Happy New Year, PONDers! I hope January finds you happy and healthy. While you’ve been busy celebrating, we at POND Trade have been busy hammering out some exciting new changes! 2014 was a great year for POND Trade, but as we dive into a fresh one I can promise you one thing: you ain’t seen nothing yet!

For starters, be sure to jump online and visit our new-and-improved website, www.pondtrademag.com. I took off my publisher’s hat for awhile and helped redesign the site from top to bottom. In addition to your favorite POND Trade articles and photo galleries, you’ll also find a new organization and layout that highlight our content much more elegantly. You can now glide through our website via the top navigation and find many different pond topics under our article category menu: pond life, technology and business trends to name a few. We’ve also added some new features, like the Gallery Spotlight, which showcases our beautiful photography in a large format via an easy-to-use slideshow tool. Visit www.pondtrademag.com/gallery-spotlight to check it out!

As if that wasn’t enough, we’ve also added a new section to the site called Contractor’s Corner. It provides an in-depth look at specific real-world pond installations and their challenges. The best part: the content comes from you! If you’ve been involved in a pond installation that might be of interest to our readers, you can submit it for potential publication in Contractor’s Corner by visiting www.pondtrademag.com/tell-us-your-story/.

Speaking of fascinating stories, this issue is chock-full of them. In our cover story, Freddie Combos (The Pondman) outlines the elements necessary to create a “Wow!” waterfall installation. On page 8, Patrick Handley shares the unique challenges and rewards of building ponds on the driest inhabited continent on Earth, Australia! If flora is more your thing, turn to page 14 to read Paula Biles’ historical account of the king of pond flowers: the Giant Water Lily. You can read Jacklyn Rodman’s historical account of water gardening as a whole on page 21, and there’s some amazing floral eye candy beneath Tamara Kilbane’s report on the IWGS New Waterlily Competition on page 39.

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Instead of going to school, millions of young children must walk for miles, just to gather water for their families.

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Pond Trade Magazine  January/February 2015
In my line of work, the greatest accomplishment is to create a landscape that looks part of one of the oldest landscapes in the world. “It looks like it has been there forever” is the best compliment that I have received as a pond builder in Australia. To make tangible what is seen in the mind’s eye, and to be able to recreate the organized chaos of nature so that it feels intuitively right in any landscape, is a satisfying achievement.

Waterscapes Australia was founded in 2008 with the mission of introducing Australia to a new culture of water garden design and construction.

At that time, the typical Australian experience of a natural pond was a small, lined excavation with rocks around the top and lots of water quality issues. Visible plumbing and the typical filtration systems similar to pool equipment were the norm. An advanced water garden of more than a few feet in diameter was almost unheard of and considered difficult to own or maintain except by dedicated hobbyists.

With this in mind, we offer professional installation and training and introduce new pond equipment and construction techniques to contractors and DIY installers. We believe in sharing our experiences and knowledge so as to create a better industry here. We appreciate what we have and learn from each other constantly.

Challenges and Equipment

The major initial challenge for our company was the unavailability of the new wave of equipment that was transforming the North American water feature industry.

The Waterfall foam was a turning point in establishing a growing industry in Australia, as we focused on educating clients and other contractors with new pond equipment and techniques.

Challenges and Equipment

The focus here at that time was on contemporary and bubbling pot-type features. There were some very talented water feature designers around the country, although construction was restricted to mostly concrete or fiberglass — and had the inherent problems and aesthetic issues common with these mediums.

We needed access to this new wave of equipment and so imported our first container of Aquascape product in early 2009. This introduced the Australian consumer for the first time to Black Waterfall Construction foam and professional Pond Skimmers and Biofalls Filters.

The Waterfall foam was a turning point in establishing a growing industry in Australia, as we focused on educating clients and other contractors with new pond construction techniques adhering to the philosophy, “Build it and they will come.”

Many Hats

With so many facets to the business growth, it has been a huge learning curve for us with many hats to wear. The creative side of pond building and the desire to constantly improve our art are our driving force, and we develop systems to support this. We have introduced a previously unheard of product...
range and construction style and trialled and adapted it to Australian conditions. We have made a countrywide impact on an otherwise right market, dominated by the European-style product and construction style. All product marketing has had to be adapted to be relevant and accepted in Australia. A good relationship with a distant supplier has been a constant support for us in our growth, as delivery of stock can take 10 weeks from ordering.

**Growth and More Growth!**

After six years we now have hundreds of water gardens in the ground, from small pondless streams and ponds to large recreation ponds.

A fast-growing part of our business is the recreation pond, or “billabong,” as we call them. We now have many examples installed in every climatic zone of Australia, from the northern wet tropics to the seasonally cold and dry southern states. Although each project has its specific challenges, the basic construction principles are similar to an entry-level garden pond.

Bigger scale, more rock, deep-water circulation, skimmers or negative edge pits are all common — and we oversize the up-flow wetlands to cope with the extreme weather and long seasons here.

Ecologically, there have been some major disasters resulting from introduced species decimating native water and land ecologies in Australia. Four types of carp were introduced, with the Japanese koi and European forms now being a major problem in Australian river systems. As a result, regulation is strong and only two states permit koi fish for hobbies.

This could be seen as a limit to the industry, although we have found that the strong awareness in supporting our native habitats has attracted people to building healthy water ecologies and water gardens that both provide for wildlife and for the personal enjoyment and lifestyle that come with owning a well-built feature.

**Permaculture and Sustainability**

Our design background is in the purest form possible, although we must be extremely conscious of water usage. We tend not to build tall or high-flow waterfalls due to high evaporative losses. It is a major concern for clients here. Sure, we have some very high rainfall pockets around the country … but these zones account for less than 5 percent of the continent.

Australia has the land mass of the USA minus Alaska, but only 10 percent of the population! Think of it this way: the population of Illinois spread around the coastal strip of the entire USA … but these zones account for less than 5 percent of the continent.

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**Communication and foresight are key in placing boundaries to form the walls for a recreational pond (top, left). Working with a tight-knit crew (bottom, left) is the backbone for keeping consistent quality and workflow on any kind of installation. The sound, movement and color (top, right) of an ecosystem pond is invaluable in any living space.**

**Water**

With so little of it around, Australians need to have water nearby. It supports our mental health. Building in the driest inhabited continent in the world has its challenges; people want water nearby and in the purest form possible, although we must be extremely conscious of water usage. We tend not to build tall or high-flow waterfalls due to high evaporative losses. It is a major concern for clients here. Sure, we have some very high rainfall pockets around the country … but these zones account for less than 5 percent of the continent.

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Water features. I think one of my greatest pleasures is visiting a client and, after the obligatory swim in the billabong, picking our salad greens from the wetland or bog garden filter.

Additional elements and functions include rainwater collection from roof or water tank overflow and feature placement in the landscape to shield property from bush fires. Indeed, some larger installations are actually used as backup water supplies for bush fire control.

**Permaculture and sustainable living,** and so we encourage edible aquatic plantings — especially in the wetland filtration zones of the billabongs. And our clients love this unexpected facet of their water features. I think one of my greatest pleasures is visiting a client and, after the obligatory swim in the billabong, picking our salad greens from the wetland or bog garden filter.

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**Project Bio**

**Location:** Somers, State of Victoria

**Client:** Doug and Dominique

**Background and Request:** This family spends a lot of time in the outback swimming in rock pools and billabongs and wanted the same experience when they are at home.

**Specific Element requests:** Jumping rock, edible plantings, water capture from roof and water tank overflow.

**Design dimensions:** 62-foot by 49-foot billabong with a 6.5-foot-deep swimming zone. The wetland filter area is approximately 360 cubic feet. Pond Volume: 50,000 gallons.

**Materials:** Granite Boulder (85 tons). River pebble (35 tons). EPDM 1.14 mm Firestone liner.

**Equipment:** Aquascape Inc. Equipment - Skimmer Signature 6, two 5,000-gallon Aquasurge pumps, Wetland snorkel and large centipede, 16 small Aquablox.

**LED Lighting:** 4 x 6 watt, 6 x 3 watt, 6 x 1 watt, 150-watt transformer with photocell.

**Machinery:** 14-ton Excavator, 4-ton Posi track loader.

**Crew and Construction time:** Three-man team and completed in 12 days.

**Logistics:** 1,300 miles from our base. A service truck traveled to the site with tools and materials, and the crew was flown in. Second project looked for same state to spread the travel costs.
in their spaces and often stay with or near them during the construction phase. In this way, each design reflects the personality of the client. I hadn’t really noticed this until a client who had visited other pond projects of ours pointed it out. Each project is tuned to the particular client’s personality and style in the layout, the rock type and placement and its intended use. It blew them away.

**Getting the Word Out**

Web presence and social media have also been key to clients discovering us. The power of the second and third separation referral from someone “Liking” our page has been a fundamental factor in our growth throughout Australia.

Our philosophy and approach to making water features that reflect what each client needs — reflecting their personality and their individuality — have helped us create a name for ourselves and given us real satisfaction in what we do. Revisiting a project and seeing how it has matured into its surroundings, and hearing stories from the clients on how it has improved their lives, is immensely satisfying.

You have to love what you do to do it well, and this passion shines through. With each experience you realize that anything is possible; that we can create what we wish in this world. To do this in a positive way that brings so much enjoyment and support to the people and environment is truly a worthy endeavor.

**About the Author**

Patrick Handley is a horticulturist, permacultural and environmentalist with over 25 years of global experience. Patrick has lived and worked in various countries, including South and Central America, where he taught Permaculture and sustainable agriculture and designed sustainable aquaculture systems and productive farm systems. He worked with community groups, orphanages and individuals for the betterment of living conditions, nutrition and social development.

In 2001 Patrick founded a landscape design company in Canada specializing in natural ponds and streams and experimented with the many types of pond equipment and construction techniques. “Waterscapes Australia” was founded and incorporated in 2008 with the mission of bringing new ideas in water garden construction by offering professional installation and training and also introducing the Aquascape pond equipment to other contractors, DIY installers and the public.

Patrick has designed projects in all regions of Australia, with the first Aquascape Ecosystem Pond installed in 2007. Waterscapes Australia also installed and displayed fully functioning pond systems in the Melbourne, Sydney, Cairns and Brisbane Garden expos, introducing contractors and individuals to ecological and sustainable water gardening. www.waterscapesaustralia.com.au www.aquascapesupplies.com.au

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Victoria amazonica [Giant Water Lily] started capturing people’s attention and imagination 165 years ago. Her success began in the late 1830s when she singlehandedly caused a water garden craze in Europe that quickly spread to the U.S. The craze broadened interest in ponds to include the working class, not just the rich. It also started the garden craze in Europe that quickly spread to the U.S. The craze broadened interest in ponds to include the working class, not just the rich. It also started the garden craze in Europe that quickly spread to the U.S.

The Giant Water Lily’s unique selling proposition (USP) was obvious and it launched a race to grow the showstopper in Europe. In 1849 Joseph Paxton was obvious and it launched a race to grow the showstopper in Europe. In 1849 Joseph Paxton (USP) was obvious and it launched a race to grow the showstopper in Europe. In 1849 Joseph Paxton (USP) was obvious and it launched a race to grow the showstopper in Europe. In 1849 Joseph Paxton (USP) was obvious and it launched a race to grow the showstopper in Europe. In 1849 Joseph Paxton

The Crystal Palace design was based on the Victoria leaf and the skeleton and other parts of the plant have spines as protection from hungry fish. Reproduction for the next generation relies on another hidden asset: beetles, which pollinate the huge, night-blooming flowers to ensure seed production.

Like Victoria amazonica and V. cruziana.

• There are only two species, both from South America.

The Hidden Stuff and Staff Will Keep You Afloat

Giant Water Lilies grow from seed every year, requiring rapid growth to attain 4- to 6-foot leaves and 12-inch blossoms. Many things that make this possible are invisible. Underneath each lily pad is a skeleton of radial ribs that supports the monstrous leaves and provides buoyancy so they don’t sink. The plant’s strength and buoyancy is critical because the Amazon’s water level changes by 40 feet every year. For defense, the hidden stuff and staff will keep you afloat.

Stand Out from the Crowd and Get Attention

When discovered by outsiders to the Amazon, Queen Victoria. Paxton also physically placed his daughter on a leaf and invited her to the plant’s namesake, Mother Nature has a lot to teach us. As a direct spinoff, Victoria also inspired a landmark building, the great-granddaddy of today’s skyscrapers. All this was accomplished using five key tactics that are relevant to building and maintaining an aquatic business — from pond building companies to retail water garden centers. As we’ve learned from experience, Mother Nature has a lot to teach us.

The Working Class, Not Just the Rich

It also started the garden craze in Europe that quickly spread to the U.S. The craze broadened interest in ponds to include the working class, not just the rich. It also started the garden craze in Europe that quickly spread to the U.S. The craze broadened interest in ponds to include the working class, not just the rich.
Endure Rough Times to Attain the Good Ones

The Giant Water Lily is almost entirely covered with very sharp spines and requires mounds of @#$%&! to grow. Applying regular fertilizer doses can result in painful stabs, but the results are definitely worthwhile. That spiny defense ensures a spectacularly beautiful plant with strong, awesome leaves and monstrous flowers smelling like ripe pineapples. Everything about Victoria commands attention, so the dangerous parts fade into the background.

Unfortunately, running a company is not all peaches and cream. Strong, successful businesses are able to keep focused on their goals in order to weather the bad times.

Ignore Naysayers and Build upon What You Learn

Paxton applied what he learned from the leaf’s extraordinary strength and adapted it to his greenhouse design where Victoria was grown. The strong, supportive leaf skeleton became the basis for a new architectural style using iron ribs to support fragile glass panes. A few years later this system was applied to his entry for the building to house the 1851 Great Exhibition (the first World’s Fair). The world’s largest building, dubbed the Crystal Palace, was built in London in only six months and on budget.

However, in 1850 many folks thought Paxton’s 23-acre glass structure could never work. Contemporary media and dignitaries ranted about countless dangers, such as hail, fire, leaks, weak construction, wind damage and excessive heat. Although Paxton was not a trained architect, he clearly understood the factors involved, in part because of the greenhouse he’d already built. He planned for all contingencies, resulting in the first modern building with strong girders supporting a fragile surface. It was built using standardized prefab materials with an elaborate system for testing components. As a result, Paxton is well-known to architects as the forefather of

Resources for Info and Plants

- Limited plants are available from select nurseries and only ship when small (pads 9 to 18 inches).
- Google searches result in countless Victoria websites, articles and videos.
- Wikipedia is a gold mine of Victoria and Crystal Palace information, especially in the references.
- Victoria: “The Seductress,” by T. Anisko, is a history of the plant and introduction to cultivation.
- To Engineer is Human,” by H. Petroski, has a great section about Crystal Palace design and construction.

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Sir Joseph Paxton’s design inspiration was Victoria (the plant), and Victoria (the queen) knighted him for creating the Crystal Palace. The light and airy architectural marvel had 10 miles of displays showcasing 100,000 objects and also included the first bathrooms in a public building. After the Exhibition, which had 6 million visitors in five and a half months, the Crystal Palace was moved to another location and used until the 1930s.

These same strategies can apply to how you set up and run your business. Learn from your previous successes and failures. Know your stuff. Listen to people you respect, both inside and outside of the business and our field. (Sometimes it pays to think outside the box and the pond.) Carefully evaluate negative comments and consider all potential problems. Then plan how to avoid them.

The Big Picture

The continued success of the Giant Water Lily makes it a perfect aquatic model for building a solid and memorable business. It demonstrates strategies in an obvious and truly monstrous way. The most important is to recognize what makes your company unique and use that to set you apart from the competition. Other Victoria lessons are to pay attention to the hidden portions of the company, build upon your past knowledge, plan for potential problems and put up with the @#$%&! to reach the good stuff. Keep Victoria in mind and adapt her teachings to stay afloat during the highs and lows. You will downplay the unpleasant parts of running a business and come out smelling like a rose … or at least a ripe pineapple.

The Author

Paula Biles co-authored “The Lotus: Know It and Grow It” and maintains the popular About The Lotus Facebook page. Her articles and photographs have appeared numerous times in hobbyist and trade water garden magazines, newspapers, books and online. Although her first love is the lotus, she also has a passion for the Giant Water Lily, which she studied up close and personal in the Amazon.
When we started Sunland Water Gardens in 1980, water gardening was not something anyone in mainstream landscaping looked at seriously. Ponds, waterfalls, fountains and water gardens were something only the rich and eccentric seemed to want — or at least that is what the landscapers and landscape architects thought.

So if I wanted to turn this hobby into a business, it was my job to find those forward-thinking brave souls to push the industry into its next level. So we won over one curious homeowner at a time. We convinced them that even if their landscaper or gardener was afraid of the unknown, we would be there to walk them through it step by step. As more homeowners found the need for water in their yards, they looked to garden centers and other professionals to design, build, fill and maintain the backyards of their dreams. Not everyone had a place like Sunland Water Gardens to walk them through the process, so homeowners had to seek other professionals to do the job.

Soon, landscapers I had begged to just try a small patch of water were shyly coming around, inquiring about help to provide what would soon be the new cornerstone of the American dream. The new centerpiece of the yard … the water garden! Being an aquatic plant grower, it was an exciting time to see this new way of looking at landscaping. Instead of just an added afterthought, the pond was now where it all started. Pond first, landscape around it. I honestly think water gardening is no longer landscaping’s kid brother.
revitalized the landscape industry.

Business Evolution

This change in thinking affected our business too. We went from an aquatic grower to a full-service aquatic nursery. We went from just growing water lilies and bog plants to providing our trademark: “Everything for your pond.” Koi? Check. Pond liners? Check. Pumps, filters, water treatments, water lilies, UV clarifiers, nets, frogs, turtles, pond design, pond building and pond maintenance? Check check check! Anything the pond owner needed, we made sure we provided it.

Our experience with landscapers and garden centers drastically changed as well. The need for more product and information was apparent. Homeowners were no longer happy with the status quo and instead looked for skilled pond builders. Not just a hole in the ground with rocks around it — no, now the customers wanted state-of-the-art equipment and artist design to be incorporated into their backyard masterpiece. So it became our job to provide not only product but the most up-to-date information as well. The need arose for design, building, and of course, maintenance of said ponds.

Serving the DIY

Water gardening indeed has changed. We have — and will always have, of course — the do-it-yourself backyard ponds. We walk the homeowner through the process step by step. Mark the pond area with a paint can; dig the hole; add underliner, EPDM pond liner, a few rocks around the edges and a waterfall; add a pump and maybe a filter; and you have a pond! If you have fish and want water lilies, 18 inches is good with a 12-inch shallow area for bog plants. The typical water garden with lots of plants, a little filtration and a bunch of pretty goldfish … homemade, perhaps a family project … this is our bread and butter.

Then came koi experts with the need for the biggest and the best of everything. Ponds 6 feet deep with in-pond gravel biofilters were all the rage in the ’80s. The big debate then was whether it should be upflow or down-flow. Then, in the ’90s, this gave way to Venturi valves, skimmers, bottom drains, sand filters, bubble bead filters, magnets, UV sterilizers, air pumps, etc. et cetera. And there were the people who said (and would argue as if it were a new religion), “Heavens, do not ever put plants in your koi pond!” Well, after 30-plus years I still fight that battle. Plants and fish (yes, even koi) do belong together. But that is for another article.

Now you will find many, many different types of pond builders and ideas about how a pond should be constructed. Some still want traditional koi ponds, some water gardens. More now we are seeing a hybrid of sorts. Companies like Aquascape are promoting and training builders to get in and out quickly with their formulated pond-building techniques, leaving behind beautifully designed water gardens in their wake. These ponds have no cement and emulate the ponds you see in nature.

From these gorgeous water gardens to tiny little water patches and fountains; however the ponds are being built … they are being built! Ponds have now become an important element of any landscape. There is always room for water in the garden. I believe everyone wants a water feature; they may just not know it yet.

Come On In; the Water’s Fine!

If you are a garden center wanting to add ponds to your repertoire, “Bread and Butter” is the best place to start. You don’t have to have trained pond builders at the ready to run out to build ponds for you. Although there is a benefit to that as well, it is not absolutely mandatory that you do. Learn what is needed to teach your customers how to build a simple pond. Then provide those simple products to do so. You will then have a whole new line of product (and perhaps services) to offer to your customers. Pond liners, pumps, filters, some simple pond supplies … and may I say, still being an aquatic plant grower — plants! There is a good market in aquatic plants. Pond owners will need them refreshed every year.

Water: Good for the Soul

Some will ask, “Is now a good time to consider expanding water gardening at your location?” I would say, “Absolutely yes!” In a time of recession, world threats, drought and stress, now more than ever people need water in their world — believe it or not, especially in a time of drought! A pond makes more sense than a garden or lawn as it uses much less water.

Water is part of us, right from conception. Even the sound of water is a natural stress reliever. Going out in the world is becoming less and less attractive to many, and homeowners are bringing the vacation resort to them, perhaps starting with a small waterfall. Ponds become gathering places for families to share the day. It’s a place where couples share a cup of coffee in the morning before work or a glass of wine at the end of the day. After 34 years, I see my industry still in the growing stage and spreading like a wildfire … and any landscaper or garden center that isn’t embracing and promoting water gardening will be left in the dust.

There are new koi to choose from every week!

Above: The beautiful Nymphaea “Pink Grapefruit.”

One of the thousands of aquatic plants at Sunland.

About the Author

Jacklyn Rodman has been the owner and fearless leader of Sunland Water Gardens for over 30 years, taking over her grandfather’s cactus nursery and turing it into a full-service aquatic nursery. Jacklyn attended UCLA majoring in psychology and biology, but her real education came in searching for answers to customers’ questions. Starting with only two small ponds of aquatic plants, Sunland Water Gardens eventually brought in koi and then dove into pond building in 1992. Today, the company is one of the pioneering distributors for all the top pond supply manufacturers. Asked many times why she started this unusual business, she claims it actually chose her! Jacklyn is mother to three children and is proud to work in a family business with her brother, helping people relieve their stress and add water to their lives … one pond at a time.

sunlandwatergardens.com
We have all seen both the “WOW!” waterfall as well as the “What were they thinking?” waterfall, right? Most prospective customers have been exposed to the latter, which makes selling them on your better-built and more aesthetically pleasing waterfall much easier.

Since the aesthetic aspects of a waterfall are subjective, I will try to focus this article on the structure and mechanics of how to properly build a natural-looking waterfall. I will not get into the design basics of location, viewing angle or geometrically shaped architectural waterfalls. That being said, follow these steps and the outcome will deliver both a properly built and an aesthetically pleasing waterfall, regardless of where and what size it is!

Be the Water

When building a waterfall it is critical to the end result that you are continuously asking yourself, “What will the water do now?” after every stone is placed. In essence we build the waterfall backwards. So when we place a boulder above another boulder, we are focused on making sure that once the water cascades off the upper boulder, it creates the desired result when the water drops onto the lower boulder. Do this over and over and over and you have yourself a consciously built waterfall, not one built by chance.

Though the concept is easy, there are many factors to be considered in order to accomplish this, such as:

- Waterfall dimensions (height, width, depth)
- Number of initial weirs/waterfall filters
- Number of overall spillways
- Boulder size
- Pump size
- Build a slope or retaining wall?
- Waterfall landscape areas
- Lighting placement

NOTE: All of the above considerations have to be decided prior to starting to build the waterfall, as they are all interrelated. As you build you can modify your initial concept, but a prior overall plan is needed for space layout, aesthetic and budget planning.

Dimensions

Waterfall dimensions are the most important factor to be considered — yet they are also the most-ignored by contractors who build what a customer tells them they “think” they want and not what they really want. A lot of customers need some education as to why a 6-foot waterfall cannot go into a 6-foot by 8-foot pond. It is your job to explain visual aspects, dimensions, scale, et cetera. The height must be to scale with the slopes on both sides of the waterfall. If the height of the waterfall is too high and is not to scale with the side slopes, you will end up with an unnatural-looking, pyramid-like waterfall. The waterfall also has to be scaled to the pond being built (or to the area if a pondless waterfall is being built).

The depth (front to back) measurement is extremely important, as it is what determines both the quantity and style of cascades. The greater the distance between the waterfall’s origin at the top and the ground elevation at the pond or pondless basin, the higher the quantity of cascades, directional water flow changes and mini-catch-pools can be incorporated.

If you are installing basic filtration such as waterfall filters, then the number and overall dimensions of the waterfall filters being used to filter the pond needs to be considered. If you’re building a pondless waterfall or a pond utilizing an external filtration system, then multiple weirs can be used. If using multiple or a combination of either, I recommend you install them at varying elevations in order to create a more interesting waterfall. Three waterfall filters in a straight line across the top of a waterfall is not appealing.

NOTE: This applies to every waterfall regardless of the waterfall’s height.

Boulder Size

The size of the boulders used will either make the waterfall look like a pile of small pebbles dumped on
the ground or give the appearance of a natural waterfall. The larger the boulders used, the more natural the waterfall will look. For example, a 2-foot waterfall should mostly incorporate two-man-sized boulders, while a 6-foot waterfall should mostly incorporate three-man-sized boulders, and any waterfall that is higher should include a large number of boulders that require the use of heavy equipment (mini excavator, skid steer, etc.) to set into place.

Pump Size

Yes, a waterfall can have too much water flowing over the rocks. Too large of a pump can be overbearing, creating excessive splash that causes water loss and taking away from small, interesting cascade nuances. Select the proper size pump(s) based on the size of the boulders used and the waterfall’s widest spillway. The larger the boulders used for the waterfall, the higher the volume of water that will be needed in order to create a realistic effect. Next, you will need to measure the waterfall’s widest spillway (in inches) and multiply by 50 gallons per hour to 200 GPH, depending on the size of the waterfall and the boulders used, to arrive at the number of gallons needed for the proper waterfall flow.

NOTE: The pump will need to have a higher GPH rating so that the proper GPH at the spillway can be achieved after all head loss calculations have been made. Commercial-sized waterfalls can require multiple pumps to achieve the proper water flow.

Slope or Retaining Wall?

The back of the waterfall will require a sloped berm of dirt or a retaining wall. Retaining walls should only be used when space is limited or if the retaining wall is to be part of an overall landscape design and used as a hardscape highlight point. Creating a sloped berm of dirt allows you to dispose of the excavated dirt and creates a landscape area behind the waterfall. If you are not using a retaining wall you should landscape the slope before rains and have a minimum slope angle of 3:1 to prevent erosion of the berm. If you are installing a retaining wall, make sure to always install a footer to prevent the wall from sagging or collapsing in the future once the dirt starts to settle and plant roots shift the dirt around. Obviously, if you’re building onto a corner of a home or an existing slope then this is not a concern.

Waterfall Landscape Areas

To achieve a natural-looking waterfall you must take into consideration what will be used for landscaping and where it will be placed. I prefer to install plants that will grow over the edges of the waterfall and cover some of the rocks, just like it happens in nature. Create planting areas surrounding the waterfall face for terrestrial plants as well as within the waterfall for aquatic plants. Placing plants both outside and inside the waterfall is especially important if you have built a waterfall with large elevation changes between spillways that require a large retaining wall between elevation changes. These plants will aid in naturalizing (hiding) the wall. Once plants grow in the transformation is incredible!

NOTE: A touch of green or some other...
Lighting Placement

Freddie Combas has 17 years of experience designing and building water features. (41 years of experience when you count Gil Soto and Mervin Rodriguez, who have each been with Freddie every step of the way for 12 years!) A founding member of the IPPCA, Freddie’s awards include: Top Gun (IPPCA), Top Frog (Aquascape Designs), 1st Place World Wide Waterfall Competition (IPPCA), BEST of Orlando (Orlando Magazine) and others. He has been featured multiple times on Disney’s HGTV show, “My Yard Goes Disney,” as well as in national publications such as Florida Design Magazine, Home Renovation, PondsUSA, Aquascaper, Ponds Magazine and Water Garden News.

Freddie’s national and international water feature projects have been built as far away as Slovakia. His company’s offerings include custom water feature and filtration consulting, design, construction, renovation, repair and maintenance.

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ThePondman@gmail.com
www.FWGDesigns.com

Proper use of space, scale, placement and boulder sizes allowed Freddie to transform this unusable backyard. Once landscaping matures, none of the pine bark mulch will be visible and the transformation will be complete.

Before & After: Located at the 18th hole of Arnold Palmer’s Bay Hill Golf Course, the existing retaining wall was cut to create the illusion that the waterfall was coming through the wall and not just resting against it.

color also changes the dynamics of a geometric-designed waterfall.

Lighting Placement

Lighting … my favorite! Ponds look nice during the day, but a well-lit waterfall in which the lighting effects create a spectacle of reflected lights dancing like fire flames on the rocks and surrounding landscapes is just awesome! When building the waterfall you must take into consideration how many lights to use and where they will be placed. Whether you light up every cascade or just a few is up to you, but always make sure that the light fixture is completely submerged and has at least 3 inches of water above it.

When you look into a swimming pool during the day, you see the shadows of the ripples at the pool’s surface being reflected as they move across the bottom of the swimming pool. When you install a light fixture underwater you reverse the effect to reflect the shadows of the ripples onto the waterfall face and surrounding landscaping, walls, roofs, etc. We like to also play with different bulb wattages within the same waterfall to create the illusion of depth. When selling ponds to prospective customers, make sure to mention these evening effects; customers are probably at work during the day like most of us and are more likely to enjoy their ponds in the evenings.

If you place the light fixtures above the water you will get a static effect with minimal reflective light movement. Static lighting should be reserved for the surrounding paths and landscaping areas. When possible, use LED units, as this technology has come a long way since the days when they were cheap, dim units with a purplish glow. Make sure all of your connections are tight and covered with dielectric grease to prevent corrosion and lack of power to the light fixtures.

In all, there are many ways to build an aesthetically pleasing and structurally sound waterfall. The above descriptions work for us, both here in Florida and as far away as two projects in Slovakia. Whether we're building a 2-foot tall waterfall or we're building a waterfall using 20-ton boulders, all of these dynamics apply. At the end of the day, make your customer happy and only build a waterfall that you would build for your home. Once you're done, sit back, relax … and enjoy! 

A light fixture reflects light against the existing landscaping ahead, creating a dynamic evening effect of dancing lights and shadows.

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Eco-Friendly items contain all natural ingredients and are chemical free. Products marked with the Eco-Friendly icon are safe for use around pets, fish, plants and wildlife.

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Full color, retail friendly packaging unites our products as a family brand. Solid margins are built-in to our products with the value of a lower “cost-per-treatment” on the entire EasyPro water treatment lineup.

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• Consume Less Energy: With the piston as the only moving part, low starting and running currents are used making it perfect for 24/7 pond aeration.
Industry Best Practices

New Irrigation Association common interest group meets in Phoenix

by Paul Amos,
Amos Sales Associates, Ltd.

The Irrigation Association’s recently formed Water Features and Lake Management Common Interest Group held its first face-to-face meeting Nov. 19 in Phoenix, in conjunction with the 2014 Irrigation Show & Education Conference.

The overall mission of the group, set in March, is to discuss issues surrounding new technologies and best practices in the field of water features and lake management. Discussion is centered on goals and objectives to move this mission forward.

Water is essential to all life, with constantly evolving awareness and regulations that affect use, collection, storage and runoff quality. This is why the Irrigation Association has allowed us to organize under its umbrella. A well-established association with strong advocacy and good cross-industry connections, IA is ideal for facilitating a voice for our specific interest as well as joining forces with other like-minded groups. With an umbrella that will be heard.

Our immediate goal is to finalize the initial round of BMPs by the end of the first quarter of 2015. This will provide the platform to begin working toward establishing teachers; establishing a contractor curriculum; and initiating a dialogue with design communities, colleges and universities and regulatory agencies. We are fortunate to have many highly qualified individuals ready to support this effort. It is our sincerest hope that this effort will help us flourish and thrive and provide success for all segments of our industry.

The categories of BMPs discussed are: disappearing water features; decorative water features; water gardens; lake management; flora and fauna; and swimming ponds. Each BMP will include definitions, typical components, additional components, construction methods, maintenance and appendices of charts and reference material. The BMPs will be established by volunteers within our industry, followed by peer review and completion. BMPs will be developed in a non-commercial format and will be based on the common ground of accepted practice for each category.

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“I have used this product in my Koi pond for the past year with excellent results. It is much better than several other similar products that I have previously used.”

“I have never found anything that works even close to GreenClean. I am sold for life!”

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January/February 2015
POND Trade Magazine 33
Large pond market is still consid-

tered relatively young and growing. No one knows exactly how many large ponds exist, but new ones get built every year. It’s called rural migration. Someone buys a five-, ten- or forty-

Large ponds are bigger, deeper and typically more expensive to take care of than a small pond. But, they are also similar in that many of the issues they face are the same or very similar. So, what are some of the bigger challenges or opportunities you’ll face?

Algae & Excess Organic Matter

As a larger pond begins to age, it will start to accumulate black muck or organic matter on the bottom. Being naturally anaerobic in nature, this leads to some nasty smells, more aquatic vegetation and more algae or “moss” over time. The best way to solve this issue is with aeration first, then possibly some good-quality aerobic bacteria, pond colorants and then chemi-

cals as a last resort. Just like a small pond, preventative maintenance and getting ahead of the problem is usually much better than throwing a bunch of alge-
cides or herbicides out there, although these products do have their place. The biggest problem with killing the algae and weeds and doing nothing else is that this decaying plant material sinks to the bottom and further adds to the problem. After four to five years of just killing algae and vegetation, you’ve got 6 inches of muck on the bottom and an even bigger problem to deal with.

Fish Kills

Fish can die for a multitude of reasons. The biggest reason is due to pond turnover. Turnover happens when the surface water cools due to a cold front or cold rain and causes the pond to mix, or physically turn over. The bottom layer does not have any oxygen and becomes mixed with the top layer, causing a low-

winter freeze-up in the central and northern states, which happens when the pond freezes and then you get a layer of snow on top, preventing photosynthesis. And lastly, you can lose fish if you have a heavily stocked pond and something happens to reduce the oxygen levels. Dying vegetation due to chemical treat-
ments is the main cause.

Aeration is a Solution for Most Issues

Again, aeration is typically the best way to keep your fish alive year-round and can be accomplished via one of many options. Electric aerators are the most popular form of aeration due to their ease of installation and 24/7 operation.

Weed Control

Different states have different rules and regulations regarding using EPA-approved herbicides and algaecides. Some require the applicator to have a Certified Pesticide Applicator license, but many allow for customer use, so

Y

ou know how it goes: one day you get a call from a poten-
tial customer who needs help, only he has a two-acre pond that has issues. What do you do?

Large ponds can provide a chal-

lenge, but they can also provide a great opportunity to grow your business by picking up new customers and offering new prod-

ucts. In many areas, the small pond market has plateaued, whereas the large pond market has grown in nature, this leads to some nasty

This pond is teeming with water shield and lotus.
Don’t be afraid to expand your horizons and your market. Large ponds are out there and need help to look good and be productive for the pond owners.

Knowing what is allowed in your state is critical. Typical algacides are usually copper-based products, although there are some newer peroxide-based ones on the market. Herbicides vary and include glyphosate-based products for emerged weeds and diquat; 2,4-D ester; endo-thall and fluridone products, to name a few for submerged ones. Knowing what weeds are there is 90 percent of the battle when recommending specific products.

Other Large Pond Opportunities

Helping a new customer with a large pond will open up lots of opportunities that you may not be thinking about. Each year, that same customer will come back to you and purchase pond dye, microbes and even algacides if needed. She will also look to you for other large pond products like fish feeders, docks, aquatic rakes and cutters, muck pellets, a new fountain, turtle traps and maintenance kits for her aeration systems, et cetera.

Don’t be afraid to expand your horizons and your market. Large ponds are out there and need help to look good and be productive for the pond owners. Another great way to come up to full speed and to get ideas is to join a large pond-related discussion forum. The Pond Boss has such a thing, where literally thousands of large pond owners go for advice and the latest industry information. Visit www.forums.pondboss.com to check it out.

by Rick Smith

Business owners and managers spend a great deal of time managing a long list of business functions and directional planning to ensure success. Every year, every month, every day they invest hard-earned capital in products, services, equipment, staffing, training and employee benefits to secure a positive business reputation and a loyal customer base.

Yet, every day each of us can share examples from our personal experiences where poor customer service experiences of the day — and the frequency seems to be growing. The cause of most of these negative experiences comes down to just plain poor etiquette. I’m talking about a demonstrated inability, lack of personal commitment or lack of training on the part of customer service staff to connect with customers by acting like they even care.

Each one of us can share negative experiences when customer service acted like we, “the customers,” were an inconvenience because we interrupted them; or it just “wasn’t their job;” or they lacked product knowledge; or they acted like it was an unreasonable request. Then I was bounced several times to other clerks since he was making up answers by store employees as the most-disliked

Friendly Front Lines

Customer service etiquette winners and losers

Be a Winner

- Stay friendly, SMILE and make eye contact
- Be respectful and polite
- Build customer rapport
- Be attentive and a good listener
- Always use proper English
- Maintain strong product knowledge
- Always be honest. If you don’t know, say so, but get the answer
- Follow up and thank the customer

When customers first make contact, they will decide in seven seconds from a list of eleven impressions whether they like you. Dislike you or are indifferent. The eleven measurements of satisfaction are: Friendliness, Courteous, Warmth and Engaging, Understanding,

About the Author

John Redd founded Outdoor Water Solutions in 2005 after spending 20 years working for a multinational company. He has a degree in Agriculture from the University of Missouri and has been involved in ponds, lakes, fishing and hunting throughout his career. Outdoor Water Solutions manufactures a wide range of large pond and lake-related products, including aeration systems (wind, electric and solar), microbes, dyes and fish feeders and is based in Springdale, Arkansas. For more information, call 866/471-1614. www.OutdoorWaterSolutions.com

Some large ponds, like this one on a California ranch, have room for a dock.

Round Table

A new wood windmill aeration system.

A large, pretty pond in Michigan.

A new fish feeder for catfish

A large, pretty pond in Michigan.

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Each one of us can share negative experiences when customer service acted like we, “the customers,” were an inconvenience because we interrupted them; or it just “wasn’t their job;” or they lacked product knowledge; or they just didn’t know how to be respectful to their companies’ most valued asset, the customer.

Recently, a doctor’s office took two weeks to phone in a needed prescription after repeated inquiries. Loser.

Then, it took an hour and twenty minutes to pick up a special order for a home project. The sales clerk didn’t know how to print a receipt, since it was a special-ordered item, but said it was OK since my payment went through. I had to suggest they call someone to assist me. Loser. I had a little conversation with the manager on that one.

Keeping Customers Happy

According to a 2011 shopper experience study in RIS News, 47% of customers highlight poor product knowledge by store employees as the most-disliked

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When customers first make contact, they will decide in seven seconds from a list of eleven impressions whether they like you. Dislike you or are indifferent. The eleven measurements of satisfaction are: Friendliness, Courteous, Warmth and Engaging, Understanding,
Responsive, Professional, Knowledgeable, Helpful, Confident, Credible and Cleanliness.

The fact is that a business can do everything right and still be severely damaged for a lack of attention to high standards and staff training when it comes to customer service etiquette. After all, customer service is the front line—the face the customer sees of the service.

Wishing You the Best of Success.

Rick Smith serves as director of sales with EasyPro Pond Products and has over 30 years of organizational leadership and sales and marketing experience in the lawn & garden, nursery and water features industries. Water gardening has been one of Rick’s passions. While enjoying his own ponds and fish, Rick has had a focus on contributing to the enjoyment of other pond owners, as well as the success of business owners, by developing customized business plans and sales support.

by Tamara Kilbane,
Denver Botanic Gardens

Denver Botanic Gardens in Denver served as the growing site for the International Waterlily & Water Gardening Society’s annual New Waterlily Competition, which drew 21 entries from hybridizers around the world this year.

These entries were divided into the following categories: Hardy, Day-Blooming Tropical and Intersubgeneric. Photos were taken of each bloom, the bloom with a ruler, and the plant with a yardstick.

After taking the photos under careful consideration, an international panel of 16 judges provided scores for each new hybrid in the following categories: Flower, Foliage, General Impression and Unique Characteristics. The judges’ scores were then combined and the hybrid receiving the highest number of points in each category was awarded first place for that category. The entry receiving the highest overall number of points was named the Best New Waterlily of 2014, and the Second Best New Waterlily of 2014 went to the entry with the second-highest number of points overall.

The IWGS would like to congratulate Buafah Garden of Thailand for their winning entry, “Milky Way.” This tropical day-blooming waterlily boasts uniquely variegated cream and pink blooms and brightly mottled leaves.

“Milky Way” - Best New Waterlily Overall and First Place Tropical Waterlily - Hybridized by Buafah Garden, Thailand

“Siam Purple 2” - Second Best New Waterlily Overall and First Place Intersubgeneric Waterlily - Hybridized by Pairat Songpanich, Thailand

“Sangria” - Second Place Intersubgeneric Waterlily - Florida Aquatic Nurseries, USA

“Morada Bay” - Second Place Tropical Waterlily - Hybridized by Florida Aquatic Nurseries, USA

“Lemon Meringue” - First Place Hardy Waterlily (and Third Place Overall) - Hybridized by Tony Moore, USA

“Siam Beauty” - Second Place Hardy Waterlily - Hybridized by Pairat Songpanich, Thailand

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There are two primary categories of filtration in living water systems: pre-filtration and biofiltration. Pre-filtration consists of any filter that has the job of removing larger, suspended or sinking solids from the water column and the floating solids from the surface before the pump or other forms of filtration. This is an important function, which we will discuss in detail in a later issue.

Biofiltration is the name of the process in which the nitrogen cycle is accomplished. During this cycle the ammonia the fish produce is converted to nitrites and then into nitrates. A biofilter is essentially a protected space for the two types of bacteria that accomplish this cycle to thrive. The nitrosomonas and nitrobacter bacteria are found nearly everywhere in nature and do their job as the environment requires.

In an artificial pond system the bacterial colonies live on every available underwater surface. The ratio of fish to water volume is much more concentrated in an artificial system than in nature, so a space with larger surface area for the bacteria to live on must be created. This additional real estate is called the biofilter.

Biofilters: Static vs. Aerated

Biofiltration can come in many types and styles, but for the most part it has two main categories: static (“plug-flow”) and aerated. Static biofiltration has no moving parts, as the name suggests. Static biofiltration both converts the ammonia and, because of its static nature, traps fine particles for water clarity. Aerated biofiltration has oxygen injected or exposed to it in a turbulent manner, which increases its performance. Both static and aerated biofiltration can use a variety of media to increase the surface area and, depending on media type, will vary in performance. This turbulent oxygenation prevents the filter from trapping fine particles.

The nitrogen cycle is an almost instantaneous reaction as water passes over the bacterial colonies through the biofilter. As compared to the speed of water near the other surfaces in the pond, the bioconversion happens at an increased rate with the larger concentrated surface area and faster speed of the water passing through the filter. All biofilters must be sized according to the maximum ammonia load possible. The colonies of bacteria will expand and contract according to fish load and temperature. Fish are cold-blooded and their metabolism changes with temperature, producing less ammonia in colder water than they will in warmer water. A well-designed biofilter will accommodate this expansion and contraction over time, maturing into an efficient bioconversion machine.

Static biofilters do a tremendous job of conversion depending on media type, but unlike aerated biofilters, they have a speed limit. The ammonia conversion is instantaneous, but the ability to trap fine particles and clarify the water is a function of speed vs. media type. In general a maximum flow rate of approximately 630 gallons per hour for each square foot of cross-sectional surface area is recommended. Flow rates above this speed tend to trap less debris, causing water clarity issues.

As an example, a 2-foot by 2-foot biofilter (2 x 2 x 630gph) should flow approximately 2,500gph for maximum water clarity. This is not a hard and fast rule, but an optimum one. A tighter media will allow a higher flow rate while a more open media requires a slower flow rate. Tighter media types require more energy to push through
them while more open media types require less energy. Media types vary, from Matai pads to Japanese matting; lava rock; sand; gravel; plastic beads; and open media like Bacti-twist, Helix, or Kaldness.

**Static Biofilters Ranked**

While all static biofilters work, my personal favorite for both water clarity and maximum surface area is an open-upflow sand and gravel filter. These are old-school but still the best and consist of layers of rock, gravel, and course sand assembled in a vertical, open tank with an air blower to clean it. This filter is the best at “water polishing” because of the tight, compact nature of the top layer of course sand requiring about a quarter pound of pressure to operate.

Bacti-twist is my next favorite because of its “shaved” nature with lots of trapping surface area on a microscopic level as opposed to molded or extruded plastics. All static biofilters should have a method of cleaning, starting with a drain off the filter to agitate the media and dislodge the debris. Additionally, a method of installation is the simplest type and almost any static filter can be converted to an aerated biofilter by simply adding a fine bubble diffuser or aeration rings made from aeration tubing run by an appropriately sized air pump. The increased dissolved oxygen content in the water column created by aeration allows the bacterial colonies in the biofilter to shift into high gear. The amount of oxygen the bacteria consume or convert is widely underestimated. Just as the fish need oxygen, so do the bacteria.

This is one problem that can be associated with pressurized bead filters in some systems. Pressurized filters can starve for oxygen if sources of oxygen are not provided in some other manner. A water fall does not always provide enough, so in-pond aeration is always a good addition. Formal ponds with no waterfall definitely need aeration or aerated biofiltration incorporated into the design.

Shower filters and trickle towers are basically like having a giant waterfall in a very compact space. Trickle towers are a smaller version of shower filters with a much slower flow rate. Water is pumped up to a drip plate or spray bar assembly and the media below is “showered” with ammonia-rich water. The media is housed in stacked trays or buckets with the water splashing through onto the next tray and then into a collection chamber at the base, from which it returns to the pond.

Shower filters are extremely efficient, as the bacterial colonies are constantly wet but highly exposed to oxygen. They can be loud, just as a waterfall can be, but the sound can be controlled. The biggest issue with shower filters is hiding them! To date my favorite media for shower filters is a combination of Bacti-twist and MP2C. MP2C is a ceramic media produced by Cermedia with the highest surface area of any media on the market, but it must be used properly. With 98,000 square feet per cubic foot, the highly porous media is also the cheapest per square foot of any media on the market. With its highly porous nature it must be pre-filtered well, but when used properly it outperforms all others when it comes to ammonia conversion.

### Moving Beds

Moving beds have media that moves or is tumbled by air. The purpose of a moving bed is to allow the ammonia-rich water to pass by the bacterial colonies on the surfaces of the media multiple times for each one-time pass through the filter. The media tumbles up and down through the filter at a faster rate than the water flowing through the filter to the outlet. The water has multiple opportunities to mix and come in contact with the bacteria and becomes highly oxygenated. Moving beds are like having multiple aerated static filters in parallel, all contained in the space of one filter container. Moving beds can be constructed in upflow or downflow configurations and are usually installed remotely.

Most waterfall filters on the market are static biofilters, but a couple of years ago I had the opportunity to design the first moving-bed waterfall filter. This was a collaboration between myself and Eric Triplett, owner of The Pond Digger. Recently someone has attempted to copy it and is claiming they designed it, so this should set the record straight!

I have also created what I call an air-driven dilution reactor (ADDR). This filter acts as a moving bed by cycling the water past the media and bacteria multiple times for each one-time pass through, but has no moving media. This allows the use of several media types instead of the proprietary floating open media created by the wastewater treatment industry.

With all these biofilters to choose from, designing a properly functioning pond system should be a challenge — but not a problem!
I got a call in 2009 from a pond caretaker who asked me about my aquatic veterinarian. He said his employer was looking for someone to help his fish. It seemed that they had a parasite infestation during the summer, and now that November had arrived, a bunch of koi had already died.

That was my introduction to Dan Webb’s gigantic koi habitat. I diagnosed the problem by having histopathology done on several koi at the University of Illinois College of Veterinary Medicine. The results came back that these koi were dying from chlamydia, most likely from a dirty habitat. A history would reveal that Dan’s 25,000-gallon gravel-bottom pond had never been cleaned properly. I was asked to remain on staff to clear the problems and take care of Dan’s koi.

If you live in Chicago you are aware that Dan Webb was once our United States Attorney for Illinois. I remember when, back in the 1980s, he gained notoriety in Operation Greylord by prosecuting corrupt judges, lawyers, deputy sheriffs, policemen and court officials.

An Unexpected Passion

Dan started his interest in ponds when he bought a property in the late 1990s. It had a retention/detention pond in the front yard that collected rain runoff from 2,000 acres to the north. He tried to make something nice with plants and fish, but realized early on it would never work because a significant rain would destroy everything. This was a very bad place to put his pond; but it was the place he liked, so he figured out a way.

Making it Work

What if there was a 24-inch drain pipe installed beneath the pond using

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a bore machine? It would isolate the site, redirect the swale and permit a reinforced gunite shell to be installed. This was done as a first step in early 2000. An underliner dewatering system was installed with a rock and gravel pond on top of it. The final touch: programmable bead filters and UV sterilizers.

The system worked for the longest time, but by 2009 it was old and the UVs had caught fire a couple of times. Things needed to be done to this 100 by 35 by 5-foot (at the deepest) pond with 2,500 square feet of surface area to turn it into a suitable koi habitat.

Deep Clean and Filters

My first full season on staff was 2010. I started by having the site pond contractor clean the pond. I took out all the koi and held them in portable vats until the job was completed. Much to my dismay, the site pond contractor only power washed and did not thoroughly clean the gravel bottom. They did remove some bottom gravel, but not enough to make a difference. I needed a clean place to keep these koi, so I decided to use bleach and Pool Shock on the gravel bottom before I filled it back up. Once I filled it again, I put more bleach in the water and let it sit for 48 hours. The chlorine count was five times what is needed to kill bacteria, and then I added sodium thiosulfate to neutralize the chlorine and put the koi back in.

As the 2010 season progressed, we upgraded the filter system. Koi Acres’ Mike Swanson retrofitted a hybrid RDF system (power in/ power out) that filters down to 70 microns. The RDF feeds two nine-cubic-foot bead filters; two five-foot-long, 300-watt UVs; and a Nexus bioractor at the north end. Another circuit was added to the south end with another nine-cubic-foot bead filter and a Clarity Unit to degas water and remove dissolved organics/solids. The south circuit also has a 500,000-BTU gas heater that permits me to feed the koi year-round. Each circuit runs at about 20,000 gallons per hour, which turns the pond over once an hour. A three-camera system feeds a monitor in the barn that holds the quarantine facility. These underwater cameras are our only means of easily observing fish under a layer of insulation all winter.

The 2011 season started with Koi Acres’ Mike Swanson removing all the rock and gravel in the bottom of the pond. This was the last time I would have to pump out all the water and remove the fish. Koi Acres figured there were 150 tons of material. All of it stayed onsite, built into a walkway over 100 feet long, three feet wide and eight inches deep. It smelled funky for weeks until it completely dried out.

In the meantime, I proved my point by having the water tested for pseudomonas bacteria. I found 5 CFU (colony forming units) per 100 ml of pond water, and 25 CFU per 100 ml of water from the gravel. Clearly, this upgrade was necessary to make a habitat suitable for well-bred Japanese koi. We gained another 15,000 gallons of water for a total of 40,000 gallons.

Rocks and Plants

The rock work around the pond was small and very plain. There were hardly any plants in or around the pond. I needed some big rock, some way to hide the old skimmers, and 200 feet of perennials with color and texture. We got Larry Carnes from Reflections Water Gardens to do the hardscape work. Larry and Lalo set 50 tons of boulders with a crane in less than a day.

He also came up with the idea to create destinations around the pond. The in-house carpenter built three docks, covering the skimmers, that cantilever well out over the water.

Dan and I decided to use sedums,
Irish moss, Scottish moss, forget-me-nots, red yarrow, dwarf pink roses and pink and red hibiscus to accent the perimeter of the pond. Every year we winter over what water hyacinths will fit in one greenhouse. The rest we give away to Brookfield Zoo. We have over 20 potted water lilies, both tropical and hardy. Every season I use more annuals for color.

An Impressive Operation

There are no fewer than six outbuildings that support the pond and koi: the north filter building, the RDF pit, the south filter and workshop building, two greenhouses and a quarantine barn. Every building is heated and ventilated. The entire property is backed up with an 80,000-watt generator system that automatically kicks on during a power failure. The in-house electrician, who holds two master’s degrees, has outdoor lighting in the trees, in and around the docks, in the water, on the two bridges and in the surrounding landscape. Everything turns on with one switch. And to top it all off, the brick pavers around the fire pit have two 12-foot butterfly koi swimming in a circle. Their LED eyes light up at night.

Day-to-day operation depends on an in-house crew. It is my responsibility to take care of the koi. We manage algae growth by using Dr. Erik Johnson’s perpetual water change technique. I feed about 100 pounds of Kenzen every month. We quarantine new fish and treat sick fish with the help of Dr. Vivian Grant, D.V.M., from Autumn Green Animal Hospital in Geneva, Illinois. Every year I pull out fish that were hatched in the previous season, and if you help me with the pull, Dan insists that we give away the koi to you! We have around 70 koi in 40,000 gallons, some of which are 95 cm and 12 kilograms. I’m often asked if Dan has a favorite fish. The answer is yes — but I assure you, he loves them all.

About the Author

Richard Heimberger built his first pond in 1997 and started keeping koi in 1999. After working for several nurseries and private pond builders, he started his own business, Problems with his own fish made Richard seek out an education in koi health. He attended the Koi Health Management Course at the University of Georgia as well as a number of seminars by distinguished experts, including the Koi Appreciation Seminar taught by Mamoru and Taro Kodama. Richard is a member of the Midwest Pond & Koi Society and has worked hard to give back to the hobby he enjoys so much. He spent 10 years as a Moderator on Doc Johnson’s now-defunct KoiVet forum, and he still has the first koi he ever bought. www.thehealthypond.com

Water quality and clarity are extremely important in any fish retail setting. Live koi and goldfish are very appealing when happily swimming in crystal clear water. An aesthetically pleasing display pond draws the customer in with the soothing sounds from a babbling brook and the brilliant colors of koi and goldfish. But, if the water turns cloudy or discolored and the fish are hard to see, your aquatic sales may suffer.

Maintaining excellent water parameters can be a full-time job, depending on your filtration equipment. If you’ve ever struggled with water quality, or if water changes become overwhelming for your fish department staff, you’ll need a quality filter media to clean things up. And in our 30-plus years of experience in breeding and caring for koi, one filter media has stood out: Bacteria House Filter Media. By Momotaro Koi Farm is a ceramic media product imported from Japan. It is used primarily in multiple-tiered trickle tower filters, but is also effective when submerged underwater where an ample amount of oxygen is provided. The trickle tower, or Bakki Shower, has been used for years by serious koi hobbyists in

Language of Koi

Miracle Water is Possible!

Bacteria House Filter Media makes ponds and tanks shine

by Ellen Kloubec,
Kloubec Koi Farm

MUCK-VAC ... The Simple Choice!
Japan, U.K. and U.S. in their quest to grow champion koi. In fact, some koi hobbyists refer to Bacteria House Filter Media (BHFM) as the maker of “miracle water” and secret healer for their pet koi fish.

As BHFM’s popularity increased it was only a matter of time until this superior filter media caught the attention of professionals and pond contractors as a solution to their water quality woes. BHFM is known for providing outstanding results in biofiltration and water clarification. It is steadily gaining popularity for use in outdoor ponds as well as in fish retailing systems.

BHFM is very versatile. It can be easily installed as a replacement filter media or in addition to any existing media. It performs well in all situations. BHFM also has unlimited life expectancy. It will not deteriorate over time like other media, such as lava rock or plastic bio-balls. The ceramic cylinder pieces range from 6 to 14 inches in length with a diameter of approximately 2 inches. Each piece has a hole through the center and resembles a large loofah sponge. BHFM can be cut to accommodate any application. The recommended rate of use is 22 pounds (10 kg) per 500 gallons of pond water.

Ceramic media is not new to the aquarium or pond industries. There are several types on the market currently — even counterfeits — but none perform as well as the authentic Bacteria House.

Technical Information

Bacteria House ceramic filter media is heat-treated at 1,300 degrees Celsius for 60 hours. This method of extreme heat conditioning causes the ceramic media to break its internal bonds; doing so creates an exceptionally porous structure with increased surface area. The extensive internal voids throughout allow for very large nitrifying bacteria populations to colonize within the media. Live bacteria grow and reproduce very quickly on this amazing filter media. The nitrifying bacteria go to work immediately, removing the pollutants from the water. In addition, with the considerable amount of gaps or crevices, mechanical filtration may also be achieved. Large organic solids and decaying matter are degraded very quickly, all without the blockage that generally occurs with other filter media products.

We know that tiny suspended particles in the water column will cloud pond water. Only when these particles are bound together can they be effectively removed. One of the key elements of the BHFM is that it reacts in a seemingly electrostatic manner with any floating organic material in the water column, causing an increase in adhesion rate and creating clear, clean water more quickly and efficiently.

Far Infrared

The BHFM is said to emit far infrared rays, which allow higher levels of oxygen to dissolve in the pond water. Far infrared rays discovered in natural springs have been shown to possess significant health benefits. In fact, far infrared technology is gaining in popularity as a safe and effective method of natural health care and physiotherapy for human beings, as used in infrared saunas.

The BHFM has an ability to effectively degas koi pond water, which lightens the load on the bio-mass, in turn making the system less KH-consuming than other conventional filtration. Another significant benefit of the Momotaro BHFHM is its innate ability to

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bounce back following a power outage. The media naturally retains an abundant amount of water that can sustain the existing nitrifying bacteria for a period of time without water flow, such as an interruption in power or during a medication treatment when water is diverted around the biofilter.

Even in ponds that are acceptably clear, this media polishes the water to expose a mirror-like shine. Pond owners and fish retailers will notice improved water quality and increased fish vigor shortly after the implementation of the world-famous BHFM.

Developed with Passion

Bacteria House Filter Media is a ceramic product that was developed in Japan by Mr. Michio Maeda, president of the Momotaro Koi Farm. In yearning to create an ideal environment to raise his koi, Mr. Maeda spent six years developing a product that would replicate the ideal ecosystem of the Ashi River and the Bakuhanseki Spring. Both of these bodies of water are located in Japan and are known throughout the region for their infamous healing properties. The Momotaro Koi Farm uses BHFM exclusively in its koi production facilities. No other mechanical filtration equipment is necessary. The farm produces award-winning koi by only using BHFM or its components.

The conventional use of BHFM: a multi-tiered shower tower (Bakki Shower). All tiers are filled with media and water is sprayed evenly over the top. The towers in the tank are designed to ensure that every inch of media receives optimum water flow and oxygenation. The inner tiers are designed to provide a more vertical flow which ensures the water is clarified and degassed as it cascades through each level before returning to the koi pond.

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Most experts agree that fluidized bed filtration can’t be beat for biological filtration as it never stagnates and provides maximum usable surface area for bio-activity.

The limitation is that moving media doesn’t capture particles or polish the water. We solved this by combining two specialized media - One that stays in motion in the bottom where the water enters, and one that floats at the top to capture pond debris, and polish the water to perfection.

DuoTek is the best solution for that large leached pond.

About the Author

Ellen Kloorber 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 supply healthy and hardy koi to wholesale customers, contractors, distributors and retailers.

The catalog is more complete than ever before. This year we are featuring a larger selection of complete fountains from Aqua Bella as well as all the complete pond and waterfall kits from PondBuilder.

With the competitive nature of online shopping, Blue Thumb has increased the number of products available that are MAP (minimum advertised price) supported. These products help you be competitive and you will no longer have to worry that your customers will find a cheaper price online.

Everything featured in the 2015 Blue Thumb Master Wholesale Catalog is available online at shopbluethumb.com. Ordering is now even easier with our new online shopping experience.

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Aquascape Inc. Announces New Automatic Dosing System for Ornamental Water Features

Aquascape is excited to announce its new Automatic Dosing System for ponds, fountains and pondless or disappearing waterfalls. The system was designed to help water feature owners maintain optimal water quality by accurately and consistently applying their choice of water treatment.

Four water treatment options are available for use with the Automatic Dosing System to maintain, clean, clear and protect your water feature. The dosing system automatically adds your selected water treatment product to the pond or water feature several times per day, helping maintain optimum water quality and clarity.

Features of the Automatic Dosing System include:

- Easily dial in the correct amount of treatment based on water feature size.
- Simple adjustment for increasing/decreasing dosage.
- X2 dosing selector for new ponds and spring startup.
- Indicator light signals when water treatment pouch needs replacing.

For more information on Aquascape’s products and services, log onto www.aquascapeline.com.

2015 Blue Thumb Catalog Now Available

The highly anticipated 2015 Blue Thumb Master Wholesale Catalog is in print and will disburse out all over the world in January 2015 to wholesale customers, contractors, distributors and retailers.

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January/February 2015
New Pet Design Premium Koi Foods Come to the US

Cobalt Aquatics is pleased to announce their new updated website, www.CobaltAquatics.com. The new site is easy to use and filled with helpful information regarding all new and original product lines. You are able to easily view product information and videos, plus contact the company with any questions directly through the site.

Cobalt is also excited to be able to offer Japan Pet Design premium koi foods to the United States. JPD has a rich and proud 200-year history of koi and goldfish breeding and fish food production in Japan. JPD is the inventor of the first floating pellet and continues to be the leader in the production of koi and goldfish foods in Japan. JPD has been honored with a high quality of craftsmanship, passion and diversity in the art of pond design and construction—a Renaissance Pond Man or Woman if you will?

This Helix Pond Contractor will have outstanding customer service, offer “voluntary” community service and is emerged in the growth and development of not only his or her business but the water feature industry as a whole. This prestigious Award will be bestowed upon a water feature visionary that the entire Helix Nation is proud to have in our network.

The winner will have one full year of bragging rights from the platform of the Helix Life Support website and will receive a customized Company T-Shirts with The Helix Pond Contractor of the Year icon next to their company name. This award will be a fantastic marketing piece for the talented contractor who proves himself or herself to his or her peers for many years to come!

This is anyone’s award to capture, but not just anyone will win. Are you installing amazing water features? Are you volunteering your time and energy for the benefit of the pond industry? Are you a well-rounded water feature specialist? Do you teach and promote pond care, service, installation and maintenance? Do you have pond water running through your veins? Are you a #HelixHead? Then this prestigious award could be yours!

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For more info: Lifegard Aquatics 562/404-4129 info@lifegardaquatics.com www.lifegardaquatics.com

2014 Helix Pond Contractor of the Year

The 2014 Helix Pond Contractor of the Year will be announced and recognized at the Water Garden Expo in Shawnee, Oklahoma in February 25-27 at the Heart of Oklahoma Exposition Center in Shawnee, Oklahoma.

Eric Triplett will be facilitating a hands-on pond installation class on February 25, showcasing innovative design and construction methods that will be beneficial for professionals at any experience level.

The next two days will feature 24 educational seminars a trade show, networking opportunities and a chance to win one of two 50-inch televisions or two Apple iPads. Michael Stone of MarkupAndProfit, will headline the event with a day-long series of seminars that will equip contractors to be more successful. Michael has designed classes in 44 states to over 26,000 contractors. He has written articles for and/or has been featured in over 20 national magazines and trade publications and has been a featured speaker for over 20 state and national associations.

The Water Garden Expo is free for trade professionals. Visit WGExpo.com or call 866/219-3561 to register or for more information.

Outdoor Water Solutions Acquires Bluewater Products Gator Float Product Line

Outdoor Water Solutions, Inc. has acquired Bluewater Products Gator Float Products (manufacturer product codes GKB103, GDD104, GJR105). Outdoor Water Solutions is based in Springdale, Arkansas and manufactures high-quality pond & lake products.

“We believe this is a great addition, offering another “Made in U.S.A.” product that complements their other product lines including wind, solar and electric aeration systems; pond fountains; high-quality pond microbes; colorants; and others. We do have over 160 other products available to meet your customers’ needs.

For more information, a catalog, or pricing information, contact us at 866/471-1614, sales@outdoorwatersolutions.com or www.OutdoorWaterSolutions.com.

Schedule for Water Garden Expo Set

Pondliner, Inc. is pleased to announce the speaker lineup for the 2015 Water Garden Expo being held on February 25-27 at the Heart of Oklahoma Exposition Center in Shawnee, Oklahoma.

For more info: Lifegard Aquatics 562/404-4129 info@lifegardaquatics.com www.lifegardaquatics.com

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Hikari Introduces Silkworm Selects

For centuries Japanese koi breeders have fed their koi silkworms to help quickly build body mass and bring about the brilliant luster their “pond jewels” were known for. Food makers have tried for decades to include silkworms with little success due to their rapid oxidation and resulting bitter taste. Hikari has spent years developing Silkworm Selects, the world’s first “extreme content” silkworm treat for koi. Silkworm Selects offers an unheard of concentration of silkworms (exceeding 5 percent) and has been produced using proprietary production processes to eliminate rapid oxidation. The silkworm’s naturally high lipid and protein levels give it the flavorful taste make Silkworm Selects a perfect addition to your koi feeding regime when a growth boost is desirable. For the past year, Hikari has been naturally reducing algae in ponds and aquariums across the world with positive reports stating, “I haven’t experienced such a rapid change in all my years. That very dark, green, thick, water in my 3,000-gallon holding pond cleared by 60 percent in less than 14 hours.”

Free Trial Sample for Pond Maintenance Professionals

This young company is searching to learn more from the community and is providing free samples of Nualgi Ponds to maintenance professionals. The feedback and evaluation received from this trial offer helps everyone benefit from the expert opinions of the best in the profession. This offer is completely free and even includes shipping within the U.S. Request a trial sample of Nualgi Ponds at nualgiponds.com/product/nualghi-ponds-nualgi-aquarium-trial-offer.

EasyPro’s New 2015 Catalog Now Available

EasyPro Pond Products of Grant, Michigan has their 2015 catalog available. They have developed their product line to offer a large catalog packed with professional and do-it-yourself pond products. EasyPro is featuring a widely expanded line of water treatments in 2015 along with new pumps, basins and aerator compressors. For more information or to request a full color catalog, call 800/448-3873 or visit easypropondproducts.com.

OASE to Exhibit and Showcase New Products at Water Garden Expo

OASE, the global leader in water gardening technology, is proud to be a part of the Water Garden Expo 2015, February 25-27 in Shawnee, Oklahoma. This three-day show features the top names in water gardening and is known as one of the industry’s top educational events.

“We invite all to stop by booth #505 to learn more about the OASE product offering, including several new items within the START and PRO lines,” said Frayne McAtee, national sales manager of OASE.”

“With OASE’s START and PRO offerings, OASE will present a line of products suited for everyone. In addition to showcasing the OASE product line, OASE is pleased to announce they are co-sponsoring Happy Hour on Thursday, February 26. “We look forward to meeting and speaking with fellow Water Gardening enthusiasts during Happy Hour,” says Andreas Szabados, President of OASE North America. For more information, call 888/755-7028.

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KW Solutions, Inc.

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FINAL THOUGHT...

Ice, Ice Baby!

Not all ponds are created equal.

But then again, not all ponds are AquaTough.

AquaTough is the world's first and only single-ply, fully reinforced and weed barrier membrane for aquatic ponds and water gardens. AquaTough's unique design provides superior performance with virtually no maintenance after installation. Featuring design reliability, long-term durability, 25-year protection and easy installation, AquaTough ponds are the low-cost choice for a variety of water feature applications.

See more to why the AquaTough membrane is the only barrier membrane for a step ahead of the competition.
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OFFERING A FULL LINE OF DECORATIVE WATER PRODUCTS.

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