Photos of the FUTURE

High-tech drones enhance water feature photography p.26
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Respecting Life Through Waterscapes

While discussing some routine design plans with a client, Cash French realized that the project they were designing was no ordinary pond renovation. It was a heartfelt tribute to the client’s family — both past members, present loved ones and future generations. Turn to page 8 to see how French’s Waterscapes gave this pond new life by focusing on “genius loci,” or spirit of place.

A Hobby, Not a Chore

Water features can bring their owners endless pleasure and relaxation. Of course, they can also become disgusting, stinky cesspools that require hours of labor to maintain. Thankfully, attention to a few key requirements will keep the workload down and the beauty and enjoyment up. Drawing from his many years of experience, Jamie Beyer outlines the key steps that will keep your pond clean, clear and easy to maintain.

Make Your Pond Shine

To many water garden designers, lighting is the lowest item on the priority totem pole. To AJ Hetzke of illumifx, it’s the difference between a drab water feature you rarely get to enjoy and a mind-altering wonderland that enchants 24/7. Turn to page 20 to discover the secrets that will bring a whole new dimension of light, shadow and magic to your installations!

Don’t Toss That Plant!

While they may seem harmless, those unwanted flowers or frogs you’re removing from your pond might be a dangerously invasive species! What’s more: “releasing them to the wild” could create an out-of-control infestation that throws the local ecosystem completely out of whack. Follow the instructions of Linda Whitlock and Jane Herbert to ensure that your pond’s unwanted wildlife doesn’t become an epidemic!

Pattern and Sheen

It glimmers, it shines, and it’s at the bottom of your pond. No, it’s not a wishing coin thrown in by a naughty neighbor — it’s Hikari Moyō! As marketable as they are beautiful, these patterned koi have a brilliant, metallic sheen that will set any koi lover’s heart aflutter. Here, Taro Kodama shares the important characteristics to look for when appreciating this unique and shiny variety.

Defeating Drought

California is experiencing record drought, and with drought comes high food prices, high electricity costs — and a slowdown in the pond business. But as Mike Garcia explains, water garden professionals are uniquely qualified not only to survive the drought, but to thrive. See how rainwater harvesting can turn the dry season into new life for your business and your home.

More Than Just a Pond

What makes a koi pond a koi pond? (You may be surprised to discover that it’s not just koi.) A true koi pond is designed specifically to accommodate the unique needs of the fish, including dissolved oxygen content, water quality, minimum water volume and even waste management.

High-Altitude Hybridizing

What could be more beautiful than Denver in the summer? How about visiting Denver in the summer for four days of waterlily talks and hands-on demonstrations? Thankfully, the International Waterlily and Water Gardening Society is offering just that!
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GELS Photograph

At the Koi Whisperer Sanctuary was watching talented people at work. (“Hey, is that a metallic sheen? And for those readers who prefer flora to fish, page 20 AJ Hetzke takes a close look at Hikari Moyo, a koi variety that glimmers with a metallic sheen. And for those readers who prefer flora to fish, page 20 AJ Hetzke takes a close look at Hikari Moyo, a koi variety that glimmers with a metallic sheen.

Publisher’s Perspective

I know what you’re thinking. “Wait a minute ... who is that person in the excavator?” Don’t worry; there’s nothing wrong with your glasses. That is indeed your POND Trade Publisher behind the wheel of a Bobcat!

No, I’m not considering a career change. That photo is one of many taken a few weekends ago when POND Trade Editor Peter Celauro and I got to experience the Super Bowl of pond build projects. At the Koi Whisperer Sanctuary in St. Charles, Ill., a dream team of pond professionals from around the globe donated their time, energy and expertise to build the Roliana Tankau Fox Healing Koi Pond. When I wasn’t working (OK, playing around) in the Bobcat, it was amazing to see all the pieces of this state-of-the-art pond project come together. And once the final stones were in place, it was wonderful to hear the sweet sounds of altruism as the waterfall began to flow.

If you’re itching to read the story behind this unique, collaborative project, stay tuned; we’ll be running our comprehensive coverage of the build (and the impromptu driving ceremony) in our November/December issue. For now, the issue in your hands holds plenty of pond construction goodness to whet your appetite! Cash French explains the amazing effect that “points of place” can have on a water feature on page 8, and on page 20 AJ Hetzke demonstrates how pond lighting can create a multi-dimensional experience that enchants viewers around the clock.

Speaking of the clock, Benjamin Timmermans offers a glimpse into the future on page 26 with his fascinating story on drones and pond photography. (Benjamin’s stunning drone photo graces the cover of this issue — and he’s also the one giving me Bobcat instructions in the shot above — so you know he’s got a technology!) Koi lovers will find plenty of tasty content in this issue as well. Ken Wallace outlines the specific characteristics that distinguish a normal pond from a koi pond on page 46. On page 38, Taro Kodama takes a close look at Hikari Moyo, a koi variety that glimmers with a metallic sheen. And for those readers who prefer flora to fish on page 38, Taro Kodama takes a close look at Hikari Moyo, a koi variety that glimmers with a metallic sheen.

While I had a blast in the Bobcat, the real magic of my day at the Koi Whisperer Sanctuary was watching talented people work generously for a wonderful cause. As I’ve published this magazine, I’ve come to feel that kindness like theirs is the hallmark of our industry. And in reading this issue, I’m sure you’ll feel it too. Happy PONDering!
French’s Waterscapes is a boutique water garden company, creating water features designed to transform any landscape into a magical gathering place or a Zen retreat. With 25-plus years of experience and a passion for creating paradise, we custom-design every waterfall, stream and pond to capture the inner hearts of our clients — blowing away the highest of expectations. The intent of our water gardens is to create balance and flow, putting together the yin and yang of the movement of water and the stability of rock. By assembling pieces of nature, we create escapes — not traditional fountains.

The Project

Bob Squeri wanted to update the existing water feature that I installed over 10 years ago. His primary goal was to make the pond visible from the house. I sketched out an idea and created a quote that was less than inspiring for both of us. We spoke some more, and then I asked about his story. Squeri’s property in San Francisco includes a retaining wall built by his dad. Bob wanted to transform his property in a way that would bring peace and inspiration for generations to come. And that is when I created “The Vision.”

At the top, I saw the past generations of Squeris represented by the headwaters. A waterfall over the wall his dad built would symbolize the constant flow of advice and inspiration his dad provided. The water would then flow into a stream of current generations and gather in the pond at the deck. Finally, the overflow of this pond would honor future generations.

Once I shared my vision, Bob was fully onboard with the project. To be more inclusive of his extended family, Bob decided to name the stream Irish Spring after his son-in-law, “The Irishman.” He also dubbed the pond “The Gulf of Squeen” as a nod to a joke between him and his daughter.

The Construction

The first step of construction turned out to be completely removing all the rocks from the original pond and filling it with the soil removed for the new one. After bringing in all new rocks, through very limited access, we built the water garden in reverse — starting at the headwaters and working back toward the house, creating the new pond last.

Expanding on the Squeri property’s existing water feature is an ideal example of why I do what I do (and how I do it). I love connecting with nature. I love working with people who also enjoy that connection. I really love capturing people’s thoughts and interests, translating them through my creative intuition into a vision and living story representing what’s important to them. I love that my clients gain a living, flowing, fluid art piece that provides a personal, and deeply meaningful, watery sanctuary.

The French’s Waterscapes Difference

With more than 25 years working in landscaping and water features, my goal is to create water gardens that offer both the “WOW!” effect when looking at the whole and the little details that provide extra depth to the project. For example, at the base of the waterfall at the Squeri site, I placed a small stone statue Bob had of an ancient Chinese warrior. Standing just nine inches tall, this statue gives the waterfall a sense of size — as well as acting as guardian.

After growing up on a sailboat, I love travel and believe that stepping into your backyard can be as much of an adventure as stepping into a foreign country. With the Squeri property, we travel through time. Others want to walk through a rainforest or desert oasis. Some want a glimpse of Bali, some the sound of the babbling brook near their childhood home. Without doing too much, or too little, I push the artistic limits to revealing the genius loci.
construct features people can escape to and interact with. Bob Squeri becomes a part of his waterscape whenever he sits at the edge of his deck and dangles his feet in the pond. Features created by French’s Waterscapes feel as if they came first and their surroundings second. I avoid the manufactured look by pulling my designs from nature; I very consciously include the Golden Ratio in all my plans to help achieve just the right look. Additionally, I design to integrate with and respect the existing surroundings. I chose to work with water because, of all of the aspects of landscape architecture, only water — with its varying sounds — has personality that speaks to me. I especially enjoy the day and night differences that exist within a single waterscape. During the day, the Squeri property sounds — has personality that speaks to the person (or people): their interests, their dreams, their story. After that, I leave to every new project:

- Grading
- Padding & Liner

In addition to creating drought-friendly water features, I also construct rainwater harvesting systems to help clients reduce their environmental footprint.

The Design Process

After an initial phone call that allows both parties to decide if we might be a good fit, I like to meet with potential clients in their dream home, property and community I work in.

Although I have done projects across the country and around the world, I predominately work in the San Francisco Bay Area, where drought is a serious concern. With the proper use of pumps, subtlety and illusion, I am able to create “large” features that actually demand very few resources. As an example, by having the deck slightly overlap “The Gulf of Squeen,” I created the illusion that the pond is twice the size. In addition to creating drought-friendly features, I also build features people can escape to and interact with. Bob Squeri becomes a part of his waterscape whenever he sits at the edge of his deck and dangles his feet in the pond. Features created by French’s Waterscapes feel as if they came first and their surroundings second. I avoid the manufactured look by pulling my designs from nature; I very consciously include the Golden Ratio in all my plans to help achieve just the right look. Additionally, I design to integrate with and respect the existing surroundings.

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Four critical steps for headache-free water gardening

by Jamie Beyer,
Midwest Waterscapes

To be successful at the hobby of water gardening, there are some critical steps that a water garden owner must routinely accomplish. If these steps are not taken, the risk of losing fish or having an unattractive water feature increases dramatically. Worse, the water feature may deteriorate — and the work required to maintain it increase — to the point that the hobbyist will give up on water gardening altogether.

These steps or techniques are fairly simple to understand, but unless they are discussed, they can easily be overlooked. In most cases this discussion should take place before the pond is built. Proper pond design, as you will see, can reduce the effort to accomplish some of these steps.

To me, it seems easy to decide which steps are most critical. However, there are so many aspects to the hobby that some techniques may be considered critical by some and yet not be included here. For the purposes of this discussion, know that when I refer to a step as critical, it means that if it is not taken, the whole pond’s ecosystem could degrade into very poor condition and the fish and the pond ecosystem could die.

This article discusses what I consider to be the most critical steps. My lifetime of experience has been in the Midwest, but these techniques are applicable to all water gardens.

A Hobby Not a Chore

For most small ponds (from 1,000 to 2,000 gallons), a waterfall like this 1,500-GPH one is critical for good DO levels. Waterfalls were originally sought after for their beautiful aesthetic, but they also have the added benefit of creating good water conditions for the fish.
Step One: Maintain Sufficient Dissolved Oxygen

Dissolved oxygen (DO) is critical to the life we observe in our water gardens. Fish have to have it, plants have to have it (they also generate oxygen, or O2), and invertebrates and certain kinds of bacteria also depend on O2 to live. Without this essential element, the ecosystem will no longer be in balance and components will start to die.

Most warm-water fish, like koi and goldfish, must have at least five milligrams per liter of dissolved O2 to survive. Other forms of life, such as some invertebrates and species of bacteria, will die at six mg/l. Of course, there are critters that can live in lower levels of DO, only needing a few mg/l.

To give you a sense of the dissolved oxygen range, maximum DO levels of 70-degree fresh water are about eight to nine milligrams per liter. Colder water is able to hold higher levels of dissolved DO — as high as 10 to 11 mg/l.

The important aspect of this discussion is that good circulation throughout the entire water garden is essential to create the eight mg/l that is necessary for healthy fish and the entire pond ecosystem. It is a rare sight to see too much circulation, but it can happen. If fish are fighting a current in most areas of a water garden, then there is too much circulation and the fish will become exhausted. As a "rule of thumb," it is essential to circulate the water in a water garden at a rate of at least one pond volume per hour — but no more than two pond volumes per hour — in the smallest ponds, on up to a 5,000-gallon water garden. This high circulation rate will maintain the eight mg/l proportion. It is difficult for most water gardeners to measure DO, so it’s safer to simply keep circulation rates high.

To maintain a circulation rate of one pond volume per hour in a 1,000-gallon pond, you would obviously need to circulate the water at the rate of 1,000 gallons per hour (or GPH). You can do this with a water pump and/or an aerator. Once you reach a turnover rate of 5,000 GPH, then this is enough circulation for most water gardens as large as 8,000 gallons. For 5,000- to 10,000-gallon water gardens, a circulation of 5,000 to 7,500 GPH is good. Of course, you can go higher. The downside of providing even higher levels of circulation is that it costs money to create these conditions, and in most cases it is not necessary for the fish and the ecosystem. Deciding on circulation rates for different styles and for larger water gardens is dependent on the aesthetics desired and type of filters planned.

Dead Zones

Some pond designs can have the potential for dead zones, or areas in the pond that have lower O2. They are typically created simply by poor design that blocks the circulation of water to a
There are several aspects to this component. First, debris (such as leaves) that was once alive but is now dead needs to be kept out of the water. Large accumulations of decaying matter rob the ecosystem of oxygen, creating anaerobic conditions and giving off hydrogen sulfide gases. These gases are toxic to both the fish and the ecosystem. It smells like rotten eggs and you will know it when you smell it.

Managing organic load also means keeping the fish population in balance with the size of the water garden. More fish means more food being introduced to the pond, which results in more poop. Each water garden is unique as to the number of fish it can support. The amount of circulation, the size and type of fish, the types of filtration, the number and kinds of plants and the temperature of the water all make a difference in what the water garden can handle for fish load. It is always better to err on the low side of population number and kinds of plants and the temperature of the water all make a difference in what the water garden can handle for fish load. It is always better to err on the low side of population.
I like to think that water gardening maintenance is no more work than most other landscape additions.

best designs in dealing with sediment, then maybe a pond vacuum will need to be used or a periodic whole-pond cleanout will need to be done. These jobs can be huge but are essential steps in managing a healthy pond.

I like to think that water gardening maintenance is no more work than most other landscape additions. Any developed landscape has areas that have to be

maintained — mowing, weeding, watering, etc. Whether you view this as too much work or not depends on your goals for that landscape. Some people would argue that water gardening requires more work, but they all have critical steps that have to be done regularly. The critical steps in water gardening — creating good circulation, managing organic load, quarantining new fish and managing sediment — have to be done without fail. With proper pond design and with the knowledge of the critical steps for maintenance, the hobby of water gardening can become enjoyable rather than a chore.

Considering the investment you make—and the pride you take—in your clients, why risk their approval by specifying an aerator with inferior technology and less value? To keep their fish at optimum health, there simply are no better blowers than Medo’s LA Series.

Here’s why:

1) They last longer, especially in hot, humid climates.

Medo’s unique linear free piston design has one moving part per piston—one. In properly installed and maintained wastewater systems, Medo piston aerators have an expected service life of 6+ years.

2) They run quieter, supporting the natural design of ponds.

LA aerators have about as much ambient noise as a light ballast. Listened to a diaphragm pump lately? For water gardens, Medo pumps are sweet music to your customers’ ears.

3) It consumes less energy.

In an era where energy costs continue to rise dramatically, Medo aerators have 50-60% of the line current requirements of diaphragm pumps—just one of the ways Medo helps drive down total costs of system ownership.

About the Author

Jamie Beyer

Water gardening has been a passion of Jamie’s for over 50 years and he has worked on over 1,000 ponds. He personally has several very large ponds, which contain many kinds of water plants and fish. Jamie has a Master’s Degree in Fish and Wildlife Biology, is a Lifetime Master Gardener and founder and past president of the Central Iowa Water Garden Association. He has a broad background in fisheries, the dynamics of water, horticulture and aquatic and wildlife ecology. He owns a consulting/installation business, Midwest Waterscapes, in which he works as a water garden, fountain and pond consultant/installer.
Many in the water garden industry believe that lighting your pond or water feature is a waste of money. They argue that the initial expense and hassle of maintaining the lights is not worth the enjoyment you, the owner, will experience.

Hogwash, I say! This author begs to differ. Think of it this way: most folks work all day. By the time they return home from work, attend their children’s after-school functions, eat dinner, clean the dishes, help with homework, et cetera, guess what? It’s dark! Multiply this by five out of seven days a week, and the only time the average pond owner gets to enjoy their pond during the day is on the weekends — if they don’t have more out-of-the-house activities. While most people purchase a pond or water feature imagining what it will look like during the day, most of their available viewing time is actually at night. Indeed, one can convincingly argue that for contractors to sell

**Make Your Pond Shine with Great Light Design**

Why water feature lighting is more than just show

by AJ Hetzke,
illuminfix

Water Lilies can take on an otherworldly appearance when they are well lit.
and install ponds, they should, in good conscience, always provide good lighting. The small additional expense for good lighting effectively provides two water features in one: a daytime feature and a nighttime feature.

**The Beauty of Nighttime Ponds**

Nighttime is the only time one can see the whole pond, inside and out. During daylight hours the surface of the pond is highly reflective, acting like a mirror to the sun. You can see reflections of nearby objects like buildings and trees on the surface of the water, but it is very difficult, even with very clear water, to see down into the depths of the pond.

At night, on the other hand, when the pond is well-lit it becomes a multi-dimensional space, alive with thousands of active life forms. At night, on the other hand, when the pond is well-lit it becomes a multi-dimensional space, alive with thousands of active life forms. You become entranced inside this multi-dimensional underwater world, a voyeur spying on the lives of millions of tiny organisms, watching them go about their lives in the aquatic universe that is the pond in your backyard.

Outside the pond, the spumescent spray of waterfalls reflecting light is hypnotic. This is more impactful at night since the contrast of the lit water next to a darker surrounding — even if adjacent spaces are illuminated with accent lighting — is much greater than sunlight hitting the water and the rocks next to it. You are drawn to the waterfall at night, and somehow it seems larger — more present — than during the day.

It should be stated that good lighting is essential to this argument, because poor lighting does nothing to enhance a pond or water feature while we are waiting for the sun to return to our side of the planet. The lazy contractor’s adage of “two lights and I’m good” is a disgrace to the lighting profession.

**Accomplishing Great Lighting**

So now, knowing what we do about the importance of good lighting, what do we consider when illuminating a water feature to create an unforgettable impact?

- **Waterfalls.** Light on waterfalls is dazzling.
  - Streams. Illuminate the stream bed; the moving water will create magical lighting effects.
  - Pond. Don’t just light water to light water. Feature objects which are interesting to look at, such as:
    - Interesting rock formations
    - Fish caves
    - Plant material, especially water lilies.
  - Marginal plants. Often overlooked, these plants, when illuminated, help create a transition between the pond and the surrounding landscape, adding dimension to the overall scene.

So how do we go about lighting these elements?

**Waterfalls**

Try positioning light fixtures in front of and to the side of the waterfall, aiming them up and across to the opposite side. The light will both reflect and refract off and through the falls to make the whole thing jump out at you. Do not place light fixtures behind the falls and aim them out at the viewer. This creates a bright spot and a glare bomb and does nothing for the waterfall.

**Streams**

Use (very) small fixtures to illuminate the streambed, aiming the light along the length of the stream, parallel to the shoreline.

**Pond**

Tuck the lights into crevices between rocks and aim them out at the object you want to illuminate, so the light source is not visible but light seems to come from nowhere. Water lilies look fantastic when the light is aimed at their stems — the light, tucked into the crevice, projects our horizontally at the stems of the water lily. The lily pads will become translucent and create a nice contrast to the water around them.
Marginal Plants
Place lights at the base of the marginal plants — sweet flag, rushes, irises, cattails, et cetera — and shine up. Don’t illuminate every plant, but choose an odd number, like five or seven or so, and balance them out around the pond.

It is also important to consider use of the space and physical characteristics when determining light fixture locations. Think about where the people who use the space will be sitting, and how they will be navigating through the yard. Position the light fixtures to avoid shining the light directly into someone’s face. This will cause annoying glare, which is a nuisance and a distraction to the features you want them to look at. Positioning the fixtures can be challenging sometimes, but you can use objects like rocks and plants to act as glare shields for the fixtures. Place the fixtures near them, and the rocks or plants will shield the light from direct view.

Also remember that the water feature is a component of the overall outdoor living space. While fascinating in its own right, if it is the only thing illuminated in the area, it will appear as a glowing object floating in the black vacuum of space. Be sure to illuminate trees, shrubs and interesting architectural features around the water feature with ingrade or stake-mounted accent lights. Path lights can be used to illuminate low-growing annuals and ground cover, and also help provide light to aid in walking through the garden. Accent lighting can also be added up high in trees, aiming down to create a moonlighting effect. This is especially effective when using a cooler-color white light.

Be careful, however, to avoid illuminating everything in the yard. Landscape lighting should create a delicate interplay of light and shadow, highlighting points of interest but not lighting too much. Otherwise, the site will become too bland.

What Lights to Use?
There are hundreds of varieties of lighting fixtures with many different light source options available on the market, each with its own advantages and drawbacks. However, the trend today is toward light fixtures using LED lamps. LEDs are an exciting technology that promises to revolutionize the way humans illuminate their environments, both indoor and outdoor. They are typically higher in price than traditional sources like incandescent and halogen, but they offer their initial expense with longer life and lower energy costs. Professional pond installers and retailers should understand the added value that lighting can provide to their clients. They should also understand they will make more money selling more lights. Aside from those industry perks, though, the truth is that good pond and water feature lighting benefits everyone. From the pond owner’s friends who get the opportunity to enjoy their host’s beautiful backyard, to the production line workers’ kids who get new shoes when more lights are manufactured and sold — beautiful pond lighting is a win-win.

About the Author
AJ Hetzke is the General Manager at Illumifx, and has been professionally involved in the lighting industry for over 27 years. He has experience designing and specifying indoor and outdoor lighting projects of all types. He founded Illumifx after inventing the first fiber optic lighting kit designed specifically for ponds and water gardens. In his spare time, AJ is active in St. Joseph’s Catholic Church, serves as a planner on the Planning Board of the town of Penfield, N.Y. (outside Rochester) where he resides, and spends time skiing and boating with his wife and three children.

Marginal Plants
Plant lights at the base of the...
In the beginning years of photography, early pioneers invented different ways of capturing dramatic images that were previously impossible to achieve. Innovations like the first airborne camera, photos of Earth from space and underwater photography come to mind.

Thankfully, in recent years the advancement of UAS (unmanned aerial systems or “drones”) have kept photography and videography on their exciting path toward enormous changes. Several industries are utilizing or beginning to explore the use of drones in different applications for industry growth, improvement ... and of course, increased sales.

**Drone Delivery**

In December, retail giant Amazon announced a previously secret research and development project. Amazon’s CEO, Jeff Bezos, informed Charlie Rose in a CBS special that they had been working on a project called “Prime Air.” Bezos’ venturesome plan: to utilize drones for residential package delivery. These Octocopters will pick up small packages from fulfillment centers and whiz through the air to deliver them to customers a mere 30 minutes after the items inside are purchased online from Amazon.com. The drones will be capable of delivering items up to five pounds, which Bezos says will account for 86 percent
of the items that Amazon currently delivers. While Amazon still must clear a few hurdles in safety testing and Federal Aviation Administration approvals before Prime Air will be functional, Bezos intends to have Octocopter drones delivering packages as soon as four or five years from now.

Grounded by Red Tape?

Since drone technology is so new and unexplored, information and legislation regarding their operation are constantly changing. As of the writing of this article, the FAA has just finished a rigorous 10-month selection process for research and test sites for six drones. The sites: the State of Nevada, the North Dakota Department of Commerce, Griffiss International Airport in New York, Virginia Tech, Texas A&M University—Corpus Christi and the University of Alaska.

Currently, all UAS operations for commercial or business purposes in the United States are subject to FAA regulations. The FAA’s written laws regarding drone use are somewhat grey and open to interpretation. (I would recommend checking with your local and state laws regarding drones before taking flight, as legislation is changing on a daily basis.)

The first case of a person being charged and fined by the FAA for operating a drone occurred in 2011, when a photographer was hired to film video of the University of Virginia campus for promotional use. The FAA was alerted about the flight and charged the photographer with recklessly flying a UAS. He was fined $10,000, but the fine was overturned quickly by the presiding judge in the case. Pilots and hobbyists were overjoyed by the quick ruling and the news spread rapidly across the web. And no wonder: if the ruling had not been overturned, the precedent would have had significant impact on several industries utilizing drone technology.

Countless Applications

One such industry that has embraced this new technology with success is the real estate industry. Real estate agents across the country who have been using drones say the marketing edge is invaluable. Increased interest and sales are attributed to the drones’ ability to capture footage from tree heights, show elevation changes and offer more extensive views of the homes’ landscaping and vistas.

The agriculture industry is also on the forefront of the drone movement. Drones provide agriculturists a faster way of...
National Fisheries Institute utilized a drone to measure chemical, physical and microbiological water variables such as temperature, chlorophyll, oxygen, algae blooms, salinity and other parameters that help determine sites suitable for aquaculture.

The water feature industry is always evolving, and the use of drones is certainly going to have a huge impact on its future. Drone technology itself is evolving so rapidly that its uses, capabilities and regulations will have completely changed once this article has gone to press.

Our Mission
An exciting test of drone technology came when Noble Visions and Liquid Landscapes set out to make a video of a recently constructed watershed in the mountains of North Carolina. We utilized a DJI Phantom 1 Quadcopter, a Zenmuse gimbal and a GoPro Hero 3+ to capture video and photos of the feature.

The two days of scheduled flying posed a few obstacles. For instance, on the first day of filming we experienced constant winds of 12 mph and gusts up to 25 mph. As if the wind wasn’t enough, we had to deal with the drone receivers, which were having a difficult time locking in on GPS signals for flight. The Phantom operates on GPS locators for operation unless you fly in manual mode, which requires a very experienced pilot. We lost complete signal at one point, which caused the drone to take an immediate turn toward the foundation of the house. (Don’t worry; it was saved by a quick grab to the undercarriage before impact.)

The second day brought more stable conditions, as the wind was holding steady at eight mph. We made several passes over both ponds and both waterfalls, as well as some high-elevation flights. The Phantom is supplied with a battery providing roughly nine minutes of safe flying time, but we seemed to push the limits every time we were airborne. (The newer Phantom 2 has longer battery life, longer flight range, in-flight camera tilt and some added safety features.)

You can download an app for the Phantom which will allow you to monitor the video in real time on an iPad or iPhone.

We used a GoPro Hero 3+ and set photo intervals at every five seconds so we could capture as many images as we could. Noble Visions was only in from Cincinnati for two days, so we were under the gun to capture as much video and as many pictures as we could. Once we were satisfied with the video and images we had captured, we were off to do the editing. All the video editing was accomplished with iMovie editing software, while the still images were downloaded to Photoshop for touch-up.

Overall, I was really happy with the end result of our first drone project. I have planned another shoot for summer on the same water feature once the final softscaping has been installed. There are few things that I think could improve the video and images when we take flight again. First, I would like to be able to shoot during the “magic hour” (see “Click” article in May/June 2013 issue) or on an overcast day for optimal shooting conditions. I would also want to get some shots straight down on the feature, along with some video following the watercourse downstream.

All in all, though, it has been a great learning experience utilizing drone technology with water features. I think that this technology will open doors to all kinds of new ideas and uses for us. The daily changes it presents will keep us, and the commercial industry as a whole, busy for years to come. The water feature industry has shown growth year after year, and with this new technology, its future looks even brighter. We as an industry need to embrace

Drones allow cameramen to send their equipment up into the skies, opening a new world of possibilities.

greatly reduce the amount of chemical runoff that flows into our rivers and streams.

Finally (and most pertinent to we ponderers), the photography industry is really absorbing every bit of this drone movement. Drone aircraft photography even won an Academy Award for Technical Achievement this year, beckoning Hollywood studios seeking dramatic aerial footage at low cost.

Drones and Ponds
In fact, seeing drones in the photography industry is how I came to utilize this exciting new technology for the pond industry. It was toward the end of 2013 when my brother, Joshua Timmermans of Noble Visions, informed me that he had acquired a drone for his photography business. He was approached by DJI, the leader in UAS development for commercial and residential use. DJI had offered to supply Noble Visions with a Phantom 1 drone to use for a multi-concert event in Mexico, since their units had not yet been used in this application. My first response after being informed: “I’ve got another application for it!”

We may not be Amazon, but I believe the water feature industry could benefit greatly from drone technology. Drones allow cameramen to send their equipment up into the skies, opening a new world of possibilities.

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About the Author
Benjamin Timmermans is the President/Lead Designer for Liquid Landscapes, Inc. located in Asheville, N.C. and has 22 years experience in the landscape and water feature industry. Benjamin focuses on a dedication to customer satisfaction through an emphasis on quality, workmanship, professionalism and meticulous attention to detail. He has great passion for the water feature industry and is consistently looking for ways to contribute to its betterment.

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Managing a client’s water feature can sometimes mean helping him or her make tough decisions about excess or unwanted aquatic plants and animals. Plants can reproduce and outgrow the feature, as can fish, frogs and snails. The client may be tempted to release plants and/or animals into a ditch, drain, pond or natural waterway — but they shouldn’t.

Because many popular water feature plants and animals are not native to U.S. waters (and even appear on state and federal prohibited species lists), it is important to guide clients in the responsible disposal of these organisms. Releasing any aquatic organism into the environment is not an accepted practice and may even be punishable by law.

Frog-bitten

A case in point is last summer’s discovery of European Frog-bit (Hydrocharis morsus-ranae) in the City of Alpena, Michigan’s Wildlife Sanctuary — a beautiful, 500-acre coastal wetland adjacent to Lake Huron. Understandably popular with water gardeners, E. Frog-bit is a small but attractive floating plant that looks like a miniature water lily with tiny white flowers.

Contrary to its pleasant appearance, E. Frog-bit is an aggressive invader that grows in dense, floating mats that crowd out native wetland plants. These mats of tough, intertwining roots and waxy leaves also shade out submerged aquatic plants. As it spreads, E. Frog-bit creates a monoculture that reduces the diversity and complexity of habitat that native wetland plant communities normally provide to the birds, fish, reptiles, amphibians and mammals that utilize wetlands for some or all of their life cycles. E. Frog-bit reproduces vegetatively through the movement of plant parts and limited seed dispersal through fruit development ... and, most significantly, by overwintering buds called turions that break loose from the plant and float to new locations.
## Fighting Back

As there is currently no aquatic herbicide proven safe yet effective in the treatment of E. Frog-bit, the Michigan Department of Natural Resources AIS Early Detection, Rapid Response Unit (EDRR) worked with the city over a two-week period to remove over 1,000 pounds of E. Frog-bit from the sanctuary by hand. But according to EDRR Coordinator Matt Ankney, the EDRR “barely scratched the surface of the current infestation.” Upon further investigation, the MDNR found that traditional means of control were not feasible due to the sheer size of the infestation. Therefore, the EDRR worked with the city over a two-week period to remove over 1,000 pounds of E. Frog-bit from the sanctuary by hand.

## Prevention Begins with You

What can water gardeners and managers do to help prevent the spread of AIS? For starters, never assume a plant or animal is native to your area. Never assume a plant or animal is harmless or benign. Understand that retail names and descriptions of plants and animals can be misleading. The national Habitattitude Campaign (www.habitattitude.net) recommends the following options for safe disposal:

- Contact a retailer for proper handling advice or for possible returns.
- Give/trade with only well-informed water gardeners.
- Donate to a local aquarium society, school or aquatic business.
- Seal aquatic plants in plastic bags and dispose of them in the trash to be landfilled.
- Contact a veterinarian or pet retailer for guidance about humane disposal of live animals.
- DO NOT RELEASE water garden animals and plants into the outdoor environment — even if they appear to be dead.
- DO NOT COMPOST these organisms — even if they appear to be dead.
- Before purchasing non-native plants and animals, know which aquatic species are prohibited and restricted in your state.

Water garden retailers, managers and enthusiasts should know that it is illegal to introduce exotic, non-native plants or animals into the outdoor environment — even if they appear to be dead.

### Habitatattitude is Helping

More than 13 million homes in the United States have water gardens or aquaria, and these industries generate more than $1 billion in our economy. However, non-native plants or animals can be very difficult to control once they become established in the environment, diminishing recreational opportunities, impacting native species and costing billions of dollars to control. According to the national Habitattitude campaign, the cost of trying to control these aquatic invasive species in the United States is more than $100 billion per year — or approximately $1,100 per household.

Habitattitude encourages enjoyment of water features and protection of our lakes, streams and wetlands by offering responsible solutions to the disposal of dead, dying or unwanted aquatic plants and animals. The campaign also offers tips for thoughtful planning of your water feature to avoid heartache and the possible spread of AIS. Habitattitude is a national education campaign encouraging proper disposal of exotic plants and animals to protect waterways from AIS. For more information, visit www.habitattitude.net.

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**About the Authors**

Jane Herbert is a Senior Extension Educator for Michigan State University Extension focusing on inland lake and shoreline management and aquatic invasive species. She holds a Bachelor of Science degree in Natural Resources from the University of Michigan and a Master of Science degree in Extension Education from Michigan State University. Linda Whitlock is a Consumer Horticulture Educator in the Michigan State University Extension office in Kalamazoo, Mich., working on the national Habitattitude campaign. She holds a bachelor’s degree from Hope College and a Master of Arts degree from the University of Michigan.
Hikari Moyo is a group of metallic koi with color patterns on their bodies. Major varieties of Hikari Moyo include Sakura Ogon, Kikusui, Yamato Nishiki, Kujyaku, Lemon Hariwake, and many more. In Japanese, hikari means metallic and moyo means pattern. Among the metallic koi, there are three groups: Hikari Muji, Hikari Moyo, and Hikari Utsuri. Hikari Muji is easy to identify because they are metallic koi with no pattern. Hikari Moyo and Hikari Utsuri, on the other hand, are both patterned metallic koi. Some people may be confused with the difference, and the easiest way to differentiate the two is that metallic versions of Showa, Shiro Utsuri, and Hi Utsuri are all Hikari Utsuri. The rest are Hikari Moyo, such as the metallic versions of Kohaku and Sanke. When appreciating the Hikari Moyo group, there are two characteristics that one must pay attention to: the sheen and the excellence of the base variety.

Sheen

When you look at the names of koi varieties, what comes first is always more important than the following word. Let’s take Ginrin Kohaku, for example. Ginrin Kohaku are red and white koi (Kohaku) with diamond scales (Ginrin). When you have an excellent Kohaku pattern koi with poor Ginrin and a koi with poor Kohaku-patterned koi but excellent Ginrin, a poor-patterned Kohaku with superior Ginrin will win. That is because the Ginrin feature is more important than the Kohaku feature. This is why we call the koi Ginrin Kohaku, not Kohaku Ginrin.

The same principle applies here, too. Remember that Hikari Moyo is a koi with two features: hikari (metallic) and moyo (pattern). The importance of the metallic feature outweighs the pattern of the base variety. Therefore, the degree of the sheen is the most important key factor in the appreciation of Hikari Utsuri.

Knowing this, how can we tell the quality of the sheen? The face and the pectoral fins are the places to look at. These two areas show the innate sheen quality of the koi the most. Please look for a clean and shiny face and pectoral fins.

Excellence of the Base Variety

Again, Hikari Moyo are the metallic version of other varieties such as Kohaku, Sanke and Goshiki, so it is important that you understand the appreciation of these base varieties. For example, Kohaku is a two-colored koi, therefore the balance of the two colors is important, especially the face and odome. As for Sanke, it would be ideal to have a Kohaku pattern and a few lacquer Sumi spots that support the Kohaku pattern.

The names of the varieties in Hikari Moyo may be a little confusing, especially when you think of the Doitsu version of them. Allow me to list some of the major varieties’ names and their definitions:

- Sakura Ogon: Metallic-scaled Kohaku
- Yamato Nishiki: Metallic-scaled Sanke.

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In front of a Southern California water company stands a huge concrete fountain that holds about 2,000 gallons of water. On a typical day, this coastal fountain can be heard from quite a distance as the soothing sound of water colliding with water — with a glimmer of sunshine to light up the display — is quite impressive.

Currently, however, this beautiful work of water art stands empty. Nearby, an explanatory sign reads: “Due to drought, this fountain has been emptied” — as if to imply that water features contribute to the drought and are not a good thing in dry times.

Whether or not one agrees with the sign, here are the facts as presented in a recent series of New York Times articles covering the drought:

■ For the first time in history, California farmers can expect no water from the federal government. This is a historic first.

■ California is America’s panhandle, and 75 percent of America’s produce comes from central California.

■ In 2014, over 800,000 acres (over three quarters of a million acres) will be left unplanted due to a lack of life-sustaining water.

■ California is America’s panhandle, and 75 percent of America’s produce comes from central California.

■ In 2014, over 800,000 acres (over three quarters of a million acres) will be left unplanted due to a lack of life-sustaining water.

■ No water = No Crops. Expect food and clothing prices to spike unlike anything we have ever seen.

■ Less water means higher water prices ... way higher, since the law of supply and demand applies here.

■ Historically, Los Angeles gets an average of 15 inches of rain per year. The record low, back in 1947, was four inches.

Last year, Los Angeles set a record low of three inches of rainfall.

■ The cost of pumping water to Southern California consumes about 20 percent of all electrical costs consumed by the state.

■ The cost of water will skyrocket since it takes billions of gallons of water to grow the food needed to keep the animals alive.

While some may question the propriety of installing ponds and waterfalls, one thing is certain: the need for water conservation is here to stay. And what many don’t know is that the same technology that is used to build ponds and waterfalls can actually be used to help out in drought situations. How? By the implementation of Rainwater Harvesting Systems.

Rainwater harvesting dates back before recorded history. As early as 6,000 B.C., civilizations were capturing rainwater and reusing it for irrigation. The Romans built...
and used cisterns throughout their empire. The cisterns were fed by a network of aqueducts and were used for drinking water and irrigation. In modern times, we remember rain barrels our parents used to capture rainwater that fell on the roof, only to be used later to water herb or flower gardens. Then the municipal water agencies came along, which supplied inexpensive water for irrigation systems, and the need to harvest rainwater became obsolete … or so we thought!

Modern Rainwater Harvesting

While rain barrels are a good start in saving rainwater for future reuse, modern methodologies from the pond world have improved on the standard above-ground water tank by offering underground solutions. Constructing underground cisterns saves valuable space for planting and hides the typical eyesore rain barrel that needs to be screened! Above-ground rain barrels are limited due to size constraints. The underground cistern is unlimited in its storage capacity due to the use of a recycled plastic tank (cube) that looks like a milk crate. These tanks typically hold a water storage capacity of 30 gallons or more and can be stacked in a system to reach your goal. If each tank held 30 gallons of water, you would need about 10 tanks to reach your target. Depending on the size of your tanks, you would need to dig a hole big enough to accommodate the tanks and accessories. You would begin by digging the hole, and once this was finished, you would install a sand base to absorb future land movement. A geotextile fabric would then cover the sand, and then the 45 mm EPDM liner would go over the fabric. As a precaution, we like to add another layer of sand over the liner and another layer of geotextile fabric over the liner as well.

At this point, you are ready to begin installing the tanks. Make sure that the tanks are installed according to manufacturer’s specifications, as installing the wrong way could lead to tank malfunction. A “well” consisting of at least 18 inches pipe can now be installed standing up, and this will house your pump accessories as well as the autofill for dry years. The entire system is wrapped in geotextile fabric to make a “box” look. All is wrapped except for the “well.”

Once this part is done, you may begin to backfill with a 12-inch layer of sand on top of the system. Make sure to install an overflow pipe as insurance that your yard will not flood in those “downpour” years. You have many different options as to how to make a final cover for your tanks. Perhaps you would like a patio on top? Or perhaps it makes more sense to locate your system under your driveway. The options are endless.

How is rainwater retrieved? Through the use of an irrigation pump. It makes the most sense if the irrigation pump is used to send water to drip irrigation. This way the most water efficiency is achieved. Rainwater can be used with native or drought-tolerant gardens, and modern technology has given rise to the advent of vegetable gardens that recycle and reuse water!

Rainwater Harvesting: Not Just for Plants

In times of natural disaster, it may take weeks before first responders can help. You can live awhile without food, but water is a daily essential! A full rainwater harvesting tank can make the difference in hard times.

There are a couple of other advantages that are sometimes overlooked. First, fire protection in rural areas was not serviced by hydrants can, in some areas, require 10,000 gallons. When I talked to the fire chief in my area, which just experienced two devastating fires, the chief pointed out that none of the structures lost had supplemental water available. Conversely, every structure that did have supplemental water was saved. When the pumper truck shows up, they only have a limited amount of water to fight the fire … and when it’s gone they have to leave. Having the extra water supply could be the difference between losing your property and having something to go home to.

Underground cisterns don’t need engineered pads to hold the tanks and don’t clutter up your view. The other advantage would be that in areas that could lose water service in a disaster, cisterns would be a great resource of potable water using some commercially available purification devices. Earthquakes are a good example of a disaster that could disrupt water mains for quite a while.

Rainwater Harvesting and Your Business

In a very depressed economy or a drought, the first things to be eliminated are the disposable income items, such as ponds and water gardens. The really great thing about installing rain harvest storage systems is that the same tools and manpower are needed to install both kinds of systems. If the economy has resulted in your receiving fewer calls for water feature work, why not consider diversifying and riding the green wave? Seriously take a look at rain harvest storage system installation. The drought and the economy don’t mean the end is near; to the contrary, you can find opportunity in any dark cloud.

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More Than Just a Pond
What makes a koi pond a koi pond?

by Kent Wallace, Living Water Solutions

According to anyone who has a fish pond — or calls me to come over and assess his pond and its issues — all ponds with fish are “koi ponds.” If you could ask a koi, however, it would disagree! A koi pond is one that properly addresses the needs of the koi, no matter what construction or filtration style the owner desires. A koi pond is first about the needs of the fish and second about the aesthetic desires of the owner.

The needs of koi must also be addressed within the boundaries of the customer’s budget and the profit margin of the professional pond builder. To address these needs, one must have a good working knowledge of both. I believe lack of knowledge, coupled with the customer’s budget and the profit motives of the pond builder, are the main reasons our industry has such a bad reputation. As I’ve stated in a previous article with no codes, specs or rules, 80 percent of ponds fail within the first year of construction, and 80 percent of those fail within the first six months. Our industry needs to clean up its act, and that starts with knowledge and ends with integrity.

Basic Requirements

I don’t profess to understand all the needs of koi, but I think I know enough to build them a good habitat.

On a basic level, koi need a few things that promote a healthy aquatic environment. This environment consists of a minimum volume of water per adult fish, good water quality, a high dissolved oxygen content, good circulation and a healthy diet. It’s also important to keep dangerous obstructions like sharp rock stands and large, freestanding lights out of the pond so the fish don’t damage themselves.

These parameters are arguable and variable depending on geography, temperature and overall water quality. But in general, we can agree on some basic numbers. Minimum water volume per adult koi, for instance, can vary, with 1,000 to 2,000 gallons on the high end for those who intend to raise show quality fish, to as low as 250 to 500 gallons for those with backyard ponds. The water volume per koi also depends on the circulation, biofiltration, depth, dissolved oxygen content, quality of food, etc. The permanent overcrowding of oxygen lowers water quality and requires a tremendous increase in biofiltration and dissolved oxygen. Mother Nature will create a fish health issue in overcrowded ponds, and she can be very creative as to how she implements the die-off when you break her rules.

Early on to avoid safety codes created for the pool industry. This allowed anyone to become a pond builder, which helped with sales, but it was not what the fish needed. Deep water keeps fish safer from predators, and fish like deeper water where they can exercise and use their swim bladder more effectively. Even goldfish like deep water. Koi like to feed from the surface by going vertical, so a koi over 18 inches can’t feed naturally in a shallow pond.

Furthermore, the sunlight affects 100 percent of the water in a pond to a depth of 18 to 24 inches. Deeper water gives the system a cushion of water volume relatively unaffected by sunlight without increasing the footprint of the pond. Deep ponds have a more stable temperature and don’t fluctuate as much between night and day or when the air temperatures change suddenly with changes in weather.

Three feet seems to be an industry-agreed minimum in the koi world, and I regularly build ponds that are five to six feet deep. Ponds over 18 to 24 inches require a pool-coded gate and fence, lighting and egress in the form of steps to climb out. These are all safety issues and are easy to design and build into the project.

Quality and Clarity

Water quality and water clarity are two different things. Water quality is what you do for your fish and water clarity is what you do for you. Just because the water is murky doesn’t mean it’s unhealthy for your fish … but why spend all the time and money on a koi pond and not be able to see and enjoy what you’ve created? A clear pond can also be unhealthy, so don’t confuse clarity for good water quality. Fish eat, excrete and consume oxygen. I consider myself a “fish poop management specialist” and design pond systems from this perspective. When fish eat, they produce ammonia and solid waste. A koi pond is a decorative wastewater treatment plant, and your job is to design a system to act as such.

Two basic types of bacteria (nitrosomonas and nitrobacter) colonize koi ponds, establishing the nitrogen cycle which converts the ammonia into nitrates and then into nitrates. A mature pond system should test zero ammonia, zero nitrates and, in some cases, zero nitrates. Nitrates are usually removed with water changes. Plants consume nitrates and in a very mature, highly oxygenated system, biofilters can
house a less-understood family of bacte-ria that also consume nitrates. Be cautious with a too-heavily planted pond for a given water volume because plants produce oxygen during the day and consume oxygen at night, causing stress to the koi. My pond is 12 years old, has 7,400 gallons and houses 25 large adult koi, with no plants and zero nitrates. I’ve built several ponds that fall into this category. I think I know why they don’t produce nitrates, but not in any way I could prove or describe.

Solids must be removed from the system in real time to prevent anaerobic decompo-sition in the pond. Decomposition produces acids and toxins that are unhealthy for fish. The filtration system should consist of two phases: pre-filtration (the removal of heavy solids from the water column) and biofiltra-tion (the nitrogen cycle). Each of these can be accomplished in over half a dozen ways that all work well. They don’t work well in every combination, however, so choosing a pre-filtration method that couples well with a particular biofiltration type in a specific style of pond is the challenge.

The Bottom Matters

Most of the dedicated koi pond owners and builders, including myself, have been opposed to rock- and gravel-bottom ponds and tend to build instead with full-flow bottom drains, mid-water drains and skimmers on a clean, unobstructed pond surface. This type of construction requires out-of-pond pre-filtration that is easier to clean and maintain. Traditional rock and gravel ponds, where the water is pulled from the bottom of the rock layer through slotted piping and sent to the biofilter, work well for a short time before they become overwhelmed. The rock layer and slotted pipe become restricted and serve as a place for solids to become trapped. Without good circulation the system goes anaerobic.

The biggest problem is cleaning them. The pond has to be completely drained and the sludge-filled gravel cleaned and put back in place with all the fish removed to quarantine during the process. The “once a year cleaning” is expensive — and it’s never really enough. Coupled with the move-ment of the fish, which is always hazardous and stressful for them, this becomes a less-than-desirable approach to pond design, construction and maintenance. It’s often one type of failure in the long list of why ponds fail. If you are building a pond that produces anaerobic sludge that must be removed in this way, you are part of the problem.

Recently a new type of “under-gravel” rock bottom pond the industry is calling the “ecosystem pond” has been promoted that uses a much more extensive “aerated” suction grid system with back-flush capa-bilities. This method is much more compli-cated to construct but doesn’t lead to the type of anaerobic sludge buildup we’ve seen with the original systems.

Biofiltration

Biofiltration consists of two basic categories: non-aerated trapping filters and aerated bio-reactors. Non-aerated biofilters are the most common, and when operated at the proper flow rate for the size of filter, they convert the ammonia and trap fine particles for water clarity. Aerated biofil-tation does a huge volume of ammonia conversion because of the high dissolved oxygen content but won’t trap fine particles for water clarity. The caution here is that aerated biofilters have a much higher flow rate but must be used in conjunction with a fines trapping filter or excellent pre-filtration in order to maintain good water clarity.

The majority of biofilter manufac-turers overrate their equipment or use a “once every two hour” turnover rate calculation in their marketing. Unlike water gardens, however, koi ponds generally need to have a turnover rate of at least once an hour. Turnover rate is defined as the number of times the total volume of pond water is sent through filtration and back to the pond in one hour. When choosing a biofilter, make sure you’re applying the right flow rate to the right piece of equipment for a given situation. A good example is the pressurized filter market. If a specific manufacturer states a capacity enough for a 10,000-gallon pond, that’s usually at a two-hour turnover rate. That means that at a one-hour or 45-minute turnover rate, it should flow between 3,500 and 5,000 gallons per hour at a maximum.

Oxygenation

Good circulation and high dissolved oxygen content are important, so try not to create shapes in the pond construc-tion that trap debris, and install current jets where necessary to promote good flow characteristics. Install air diffusers on demand, don’t think that a waterfall is always going to be enough oxygen for the pond. Both koi and the bacterial colo-nies in the biofiltration system consume a huge amount of the dissolved oxygen, so add aeration. Run part of the system with air-lifts whenever possible. Air-lift pumping systems move the water and add air with the same energy, keeping the pond consistently oxygenated in real time. Open biofiltration exposes more of the pond’s surface area to oxygen, while pressurized filters consume oxygen without adding any.

Food

Feed a high-quality food with a high natural protein content derived from a source the fish might actually have access to. I feed a 40 percent protein food with no fillers. This keeps my koi and my biofilters healthier. A koi’s natural diet does not include wheat germ, chicken feather meal, soy, corn or algae. Koi do...
eat worms, rotifers, mollusks, and the critters that live in the algae you think they are eating. All of these have a protein content of over 50 percent, and koi graze all the time.

On a final note, a koi's head should not be the widest part of its body. A healthy koi will expand out behind the gill plates and have a nice, curved body shape. Follow the requirements I've outlined above, and soon all of your koi will start showing some healthy curves!

By Rick Smith, EasyPro Pond Products

The Five Golden Minutes in Sales

How nonverbal communication can make or break a deal

It is in the first five minutes of a conversation that we have to establish rapport and trust. Understanding what influences good communication and being able to quickly adjust naturally to each personality type will greatly contribute to a mutually positive outcome — and, in the case of a sales call, greatly increase our rate of success.

If asked, most of us would say that effective communications would depend largely on the words we speak. But studies show that is simply not true. Whether consciously or unconsciously, we have become trained to respond more to tonality and body language together contribute a whopping 93 percent of how we communicate with each other.

Seven Percent Spoken

The words we speak account for only seven percent of what we communicate. But that doesn’t mean they don’t matter. For the most effective communication, the words we use should change to mirror the personality type of the person we want to communicate with. For example: the vocabulary and communication style used by a business executive who thinks in terms of detailed business plans would be very different from those of an artist who is focused on how best to express feelings and emotions. It is extremely important to be able to “mirror” the style and vocabulary of those with whom you are communicating — i.e., a driver personality, an analytical personality, an amiable personality or an expressive personality.

How we speak those words, or tonality, accounts for 38 percent of what we communicate. And body language accounts for over 55 percent of what we communicate. And here’s a helpful tip: body language is always linked to one’s attitude. My mother, who was a professional banker, told me many times to “Stand straight, look ‘em in the eye, communicate with conviction and smile. Oh, and polish those shoes.” Great advice, because no matter which personality type you are communicating with, positive body language contributes to good communication.

The Eyes Have It

With good eye contact you will be able to read real-time emotions and make necessary adjustments on the fly. Watch the eyes. Is the person you’re speaking with making positive contact with you, supporting what you are saying? Or are they frowning or squinting and looking away because they are in deep thought or uncomfortable with your message? If their eyes are looking up and away, they might be trying to visualize. However, if the eyes are down and away, they are usually analyzing information and in deep thought. Are the corners of the mouth turned upward in agreement or excitement? Or are they turned down, saying, “I’m not with you yet?” And if you see the jaw muscles tighten, well, just know that you’ve hit a nerve or they are becoming frustrated.

Learn a New Language

Reading a good book on body language is not only fun, but very helpful. Once you have a complete understanding of how to read body language, it’s like...
Instead of going to school, millions of young children must walk for miles, just to gather water for their families. Give these children hope! Visit www.PondsForPeace.org and do something amazing!

Listening to someone speak about you in a foreign language when they don’t think you know what they are saying. How cool is that?

Understanding what influences good communications is only half of the equation. The other half, which is equally important, is to possess a working understanding of the four basic personality types. Each personality type addresses communications differently with regards to how they process information, the words they use, the level of emotion expressed, the rate of speech and what makes them reach a decision. Thus, next time we will take a look at how best to communicate with each of the four basic personality types:

- The Driver
- The Analytical
- The Expressive
- The Amiable

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, sales support material and numerous PowerPoint training seminars.

The International Waterlily and Water Gardening Society will hold its annual symposium this summer from Aug. 14 to 17 in Denver. Local hosts for the event will include Denver Botanic Gardens, Hudson Gardens and the Colorado Water Garden Society.

Conference attendees will be treated to informative talks from industry experts including Dr. Tomasz Aniśko, author of the newly published book “Victoria: The Seductress,” and Sylvia Bernstein, author of the best-selling book “Aquaponic Gardening: A Step-by-Step Guide to Raising Fish and Vegetables Together.” Additional talks will cover, among other things, the science and art of waterlily hybridizing — including a discussion of the latest breakthroughs with a panel of expert hybridizers including Mike Giles, Brandon McLane and Tony Moore.

Beyond the classroom, the symposium will offer afternoon tours to top botanic gardens in the region. On Friday afternoon, the group will tour Denver Botanic Gardens, one of the top ten botanic gardens in the country. This tour will coincide with the Colorado Water Garden Society’s annual “Water Blossom Festival,” which is held each summer at DBG. The festival will include demonstrations, plant giveaways and docent-led tours of the water gardens, as well as a rare, behind-the-scenes glimpse of the greenhouse facilities. The IWGS New Waterlily Competition entries will be on display in the gardens’ Four Towers Pool, adjacent to the newly opened Science Pyramid.
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Tamara Kilbane is the horticulturist in charge of aquatic plants at Denver Botanic Gardens in Denver, Colorado. A graduate of Oregon State University, Tamara worked for 3 years at Hughes Water Gardens in Tualatin, Oregon before moving to North Carolina in 2005 to oversee the aquatic plant displays at Sarah P. Duke Gardens in Durham, North Carolina. In her current role at Denver Botanic Gardens, she maintains the aquatic plant displays and also manages the IWGS New Waterlily Competition, a contest which recognizes the best new waterlilies developed by hybridizers around the world.

and symposium attendees will be able to vote for their own favorites. If that isn’t temptation enough, artwork by world-renowned artist Dale Chihuly will be displayed throughout the gardens and water features in an exhibit that is sure to stun.

Following Saturday morning’s talks, the group will visit Hudson Gardens, a public garden in nearby Littleton, which features a Victoria pool as well as several large ponds displaying hardy waterlilies and lotus. A hands-on hybridizer demonstration will be offered pond-side at the gardens’ grow-out pond, giving attendees the opportunity to ask questions as the hybridizing process is demonstrated by the experts.

On Sunday, an optional trip to the mountains will be offered. This day trip will include a docent-led tour of a high-altitude garden maintained by Denver Botanic Gardens’ staff at Mt. Goliath as well as a drive to the peak of Mt. Evans, the highest paved road in North America. Bighorn sheep and mountain goats are commonly spotted in this area and sweeping views of the Rocky Mountains make it an unforgettable trip.

We hope you will join us in Denver this August for what will surely be an educational and memorable symposium. For more information, including hotel booking links and registration forms, please visit the IWGS website at iwgs.org.

The book “Victoria: The Seductress” (above, left) by Dr. Tomasz Anisko (left). The Four Towers pool (above, right) at Denver Botanic Gardens, site of the IWGS New Waterlily Competition.

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Aquascape announces its all-new 2014 LED Garden and Pond lighting options which can be fully submerged or used in traditional landscape settings. All 2014 Aquascape LED lights consist of permanently sealed watertight fixtures and are backed by a limited 5-year full replacement warranty.

Additional features and benefits of Aquascape’s 2014 LED lights include:
- Five-year full replacement warranty.
- Warm, natural-looking light color that blends in easily with traditional halogen lighting.
- Up to 90% energy savings compared to halogen lighting, with 30 times longer bulb life.
- Easy-to-install quick-connect system.
- Five-year full replacement warranty.

Aquascape’s LED Garden and Pond lights are available in a variety of options, including three sizes of LED spotlights, an LED waterfall and landscape accent light, an LED fountain accent light, and a DIY spotlight kit that includes three lights pre-wired for easy installation.

Aquascape
866/877-6637
www.aquascapeinc.com

BioSafe Offers GreenClean® Blue Colorant
GreenClean® Blue Colorant is an environmentally responsible, non-toxic formula that adds rich blue tones to water features, including koi ponds, fountains, and water gardens. There are no water use restrictions and mixes quickly and evenly in all water temperatures.

GreenClean Blue Colorant comes in a 1.7 fluid-ounce Perfect Pour container. It makes measuring easy – just tilt to the side and the measuring cup does all the work. GreenClean Blue Colorant is a perfect companion to the full pond line of algacides, bacteria, and pH Up and Down. Made in the U.S.A.

For more info: biosafe.net

Mark your calendars, January 6-8, 2015 for the 42nd edition of Landscape Ontario’s Congress, Canada’s premier green industry trade show and conference. For green industry professionals the show is optimally timed for professional development, investigation of industry trends, product innovations and networking with experts and peers.

Congress offers eight acres of more than 600 multinational vendors, under one roof – the ideal purchasing environment for design-build, fence, landscape, pool and pond contractors looking to see the latest technologies, equipment, tools and products on the market. If you influence purchasing decisions for your business, then you won’t want to miss this event.

Landscape Ontario’s four-day conference program begins on Monday, January 5 with a series of industry-specific seminars hosted by our sector groups for IPM, Landscape Design, Irrigation and Prosperity Partnerships. The full conference, running January 6-8, guarantees that you will discover new concepts, ideas and valuable insight from leading industry experts. The program is full of great options for employees and business owners wanting to stay a step ahead. Taking time to attend the trade show and conference is hard work, so don’t forget to unwind at the crowd-pleasing social events – The Awards of Excellence Ceremony and Tailgate Party. Plan now to attend Congress 2015. Visit www.locongress.com for details on the events, education and expert speaker profiles.

Aquascape Announces New 2014 LED Garden and Pond Lighting
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Aquascape
866/877-6637
www.aquascapeinc.com

CLOWARD H2O Completes Engineering Work on Oklahoma City Whitewater Rafting Project
CLOWARD H2O, as an instrumental part of the design team, has completed engineering work on the soon-to-be-built Oklahoma City Whitewater Rafting and Kayak Course. The overall project will cost around $32 million and will bring a whole new level of adventure to downtown Oklahoma City in the heart of the boathouse district. With rapids ranging from class II to IV, the course will allow both amateurs and professionals to experience the thrill of spending a day whitewater rafting or using the Olympic-style slalom kayaking course.

The project management team selected Scott Shipley, a three-time Olympic Kayaker and President of S2O Design, to design the course. In collaboration with S2O Design, CLOWARD H2O provided aquatic/hydraulic and conceptual pre-design engineering services. The project is now in the bidding phase with construction beginning within the next few months. The facility is scheduled to be open for adventure in late summer of 2015. Only a few facilities in the world can claim comparison to this facility and CLOWARD H2O is thrilled with our role in the development of this extraordinary project.

For more info: CLOWARD H2O
866/877-6637
www.boathousedistrict.org/whitewater

EasyPro’s Vianti Falls Spillways Just Got Bigger
EasyPro Pond Products of Grant, Michigan has designed lip extensions for their popular Vianti Falls line. The 15-inch extension on these spillways makes them ideal for windy locations as it extends the waterfall out away from the wall. This formal waterfall option is available in four sizes from 35 inches to 71 inches.

For more info: EasyPro Pond Products
800/448-3873
easypropondproducts.com
Aquascape, Inc. offers an expanded Pondemonium® 2014 event with the first-ever Foreman/Rookie Pondemonium August 18-21, followed by the traditional Pondemonium format for owners and managers August 21-23. Pondemonium is now in its 14th season as the pond industry’s premiere business and networking event for distributors, contractors, and retailers. This year’s theme, Reach for the Stars, is a nod to Aquascape’s upcoming television series, “Pond Stars,” coming soon on Nat Geo WILD. Pondemonium® 2014 events and workshops focus on helping pond business owners increase their exposure and success with water features. “The growing popularity of water features has created a need for us to expand our Pondemonium event,” says Greg Wittstock, founder and CEO of Aquascape, Inc. “I’m excited and anxious to offer hands-on training, classroom sessions, and educational pond tours this year, geared specifically toward foremen and first-time attendees. During the second half of Pondemonium week, business owners and managers will gain valuable insight from the workshops and networking events targeted for their needs.”

This year’s events include:
• Classroom sessions taught by leading experts
• Valuable hands-on training at Build-A-Pond events
• Network opportunities with hundreds of successful pond builders and retailers
• Cutting-edge pond construction techniques
• Overview of the latest pond product offerings
• Today’s marketing techniques to increase sales
• Sessions on finance and business operations

To learn more about Pondemonium®, log onto www.pondemonium.com. For information about Aquascape, Inc. and its products and services, visit www.aquascapeinc.com or call 1-866-877-6637 (US) or 866-766-3426 (CAN).

Larger Basin for Disappearing Fountain New Now Available from Little Giant

Perfect for in-ground installations, the new basin can support up to 500 lbs. It is non-toxic and safe for aquatic plants, fish and animals. This rugged design is ideal for smaller applications when you want the water effect within limiting spaces. The basin can be covered with rocks, granite, pottery, etc. cetera.

The basin will be available beginning May 28. More information can be found at http://tinyurl.com/2cs4n7w7

Aquascape Introduces Deionization Systems for RO Units

Aquatic Life, LLC introduces a new Dual Deionization (DI) System for home and commercial application. The Dual Deionization system functions as an additional filtration system for reverse osmosis (RO) units to lower or eliminate total dissolved solids in membrane-filtered water. The new Dual DI System for commercial application has two clear refillable canisters with 10-inch canisters filled with a high-quality mixed-bed color-changing resin. As the filtered resin absorbs the impurities, it changes colors to notify users when to replace the resin media.

Compatible with Aquatic Life’s RO Daddy, the Dual DI System has 0.5-inch and .25-inch connections for multiple plumbing applications and includes mounting brackets and wrenches for easy installation and maintenance. Additionally, Aquatic Life has designed a DI mixed bed-color-changing resin inline cartridge for both the RO Daddy and RO Junior systems.

Available in two sizes, 2-cubic inches and 31-cubic inches, the inline cartridges include press-fit fittings for .25-inch tubing and clips for quick connection to the RO units. Like the Dual DI System for the RO Daddy, the inline cartridges each contain a high-quality color-changing resin mixture for direct purification of water. “When developing the deionization systems and cartridges, it was important that every part was functional with the RO units our customers are already using,” said David Troop, Aquatic Life co-owner. “The refillable cartridges contain a mixture of Cation and Anion resins that allow for easy customization of water treatment. Once the total dissolved solids are removed, users can take the purified water and add back the correct amounts of trace elements.” For more information about Aquatic Life and its premium product offerings, please visit www.aquaticlife.com.

To order the Dual Deionization Systems, please call 1-888-548-3480 or email dealersupport@aquaticlife.com.
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