

## Advice from BioGuard

Bill Mansfield, Education Officer at BioGuard has suggested that pool service technicians and pool owners need to realise that a pool that “looks” dirty might not be much of a health problem – but a pool that has been contaminated by sewage can be a serious health risk.

To make sure your pool is healthy after a flooding with potential contaminants, you must maintain a **very high** free chlorine level for approximately half a day with the filter and pump operating. Check your local state and council regulation for the precise measurements of how high you should dose your pool. Mansfield offers some simple instructions for cleaning a flooded pool.

- Remove all solid wastes (leaves, branches, rubbish);
- Check equipment, there is no need to add chemicals if the mechanics are not working (filter and pump).

In the worst case scenario – if there has been a danger of sewage contamination – the pool will need to be thoroughly disinfected.

The safest way to be sure of killing the pathogens caused from serious contaminations is to increase the dosages of chlorine for a longer than normal period of time. It is called the CT value or ‘concentration time’, concentration of free chlorine (mg/L) x time (minutes).

The State you are in will determine the CT value you should achieve for your pool. On average the cleanup requires a CT value above 10,000.

The calculations for CT values work like this:  
 20mg/L (free chlorine) for 12 hours  
 20 x (12 hours = 720 minutes)  
 20 x 720 = CT value of 14,400

The required CT values vary by State.

Mansfield offers the following information regarding State regulations for faecal cleanup.

NSW: CT value above 15,300; VIC: CT value of approximately 10,000; QLD: Shock dose the pool overnight (no specific regulations on CT values); SA: Super disinfect the contaminated area.

After you have sanitised your pool again, you can begin the cleanup. Even if you drain the pool, there may be bacteria that survive in the pipes and filter, so draining is not the solution if you are unsure if your pool is contaminated.

Draining might also be impractical for a number of reasons including the danger of the pool popping out of the ground because of hydrostatic pressure.

Mansfield offers the following cleanup method:

1. Check mechanical equipment for damage;
2. Remove large debris;
3. Floc pool;



Red Cross evacuation centre in Rockhampton



Red Cross bringing in emergency supplies

4. Vacuum to waste;
  5. Leave pump/filter on till you have balanced the pool;
  6. Test for metals and treat accordingly;
  7. Test for Chlorine Demand and treat accordingly;
  8. Use algicide;
  9. Manage chlorine residual with optimiser;
  10. Use clarifier;
  11. Manage water balance;
  12. Use clarifier.
- Follow label instructions for application of all products.

## Advice from Focus

Steven Humphris from Focus says that any pool that has had contaminated river run-off mix with the pool water, should be totally drained, cleaned, then re-filled with fresh town water. No pool should be simply treated with a flocculent, cleaned and re-balanced if contaminated flood water is present as this can be a major health risk.

Caution needs to be taken when draining pools at this time as the flood water has made ground conditions around the foundations of the pool very wet. Pools should not be drained until ground conditions have dried to at least the depth of the pool as the entire shell of the pool (fibreglass or concrete) can “pop” out of its original position with the change in hydrostatic pressures.

Until such time that the pool can be drained, Focus is advising pool technicians to dose the pools contaminated with these flood waters with a large amount of chlorine and wait until they are happy that the ground

has dried up sufficiently to avoid these complications. Some pools are requiring in excess of 40kg of Calcium Hypochlorite before a chlorine reading has been obtained. If a pool owner insists on having the pool drained, cleaned and balanced straight away, Focus would recommend having the owner sign a disclaimer to make them aware of the potential risks. All electrical pool equipment needs to be checked by a licensed electrician or replaced before the pool is re-commissioned.

For those businesses experiencing a shortage of salt or liquid chlorine in this busy period, Focus has put together an alternate sanitation program to assist customers maintain a safe, sanitised, clear pool without the hassle of adding a daily sanitiser.

The salt pool owners should be advised that running a low salt level may void their manufacturer warranty on the salt chlorinator. For more information call 1300 136 287.

## Advice from LoChlor

Paul Simons from Lo-Chlor has also offered advice on how to manage flood affected swimming pools.

He says that the first thing to be done with any pool that has been submerged is to dump the water and refill the pool – being sure to take into account the danger of the pool popping out because of hydrostatic pressure.

However, even after refilling the pool, the water will still be a mess because of the existing water in the lines. So there will still be the need for a regime of heavy dosing to get the water back to normal.

“Normally when you have an extremely cloudy pool the pH and TAL (Total Alkalinity) tend to be very high,” he says. “In the case of the Queensland floods (due to the high soil content and the low pH of soil) the pH and the TAL of the water will be quite low. Low pH in particular tends to hamper the effects of flocculants and clarifying agents when clearing a mud slide in a pool. These products (flocculants in particular) require a higher than normal pH for them to be effective.”

## Chemical security

The Attorney General’s Department has warned pool shops to remain vigilant during the aftermath of the floods.

In the wake of the recent weather events Australia has experienced, quantities and demand for swimming pool chemicals will increase as affected pool owners treat and clean their pools.

During this period of high demand, it is important for retailers of pool chemicals to remain vigilant to any suspicious activity displayed by customers. Chemicals are widely used in Australia for a broad range of legitimate purposes by consumers, businesses,

industry and other organisations. Unfortunately, some chemicals are also attractive to potential terrorists who buy and use them in the manufacture of homemade explosives.

Businesses and retailers are best placed to help prevent, detect and deter suspicious purchases of chemicals. As the provider of these chemicals, retailers will be aware of your products and their legitimate uses. Knowing their customer involves being able to identify whether a customer’s purchase of a chemical product is legitimate. In particular, retailers should consider:

- Does the customer fit the usual profile?
- Is the order unusually small or large for the intended use?
- Is the intended use of the product responsible?
- Does the mode of payment and delivery arouse suspicion?

The AG’s office requests that if you encounter any unusual behaviour, report it to the National Security Hotline on 1800 123 400.

For more information regarding chemical security, visit the Chemicals of Security Concern website at [australia.gov.au/chemicalsecurity](http://australia.gov.au/chemicalsecurity).

## Championships cancelled

The 2011 Australian Pool Life Saving Championships due to be held in January at the Brisbane Aquatic Centre, Chandler, had to be cancelled due to the floods. The aquatic centre is part of the Sleemans Sport Complex, which was designated an evacuation centre for the region. No alternative venue could be found in time.

Meanwhile, swimmers came together in January to raise donations for flood relief. Led by pledges of support and donations from Brenton Rickard on the Gold Coast, Queensland, Alicia Coutts and Cameron Prosser who live in Canberra, Marieke Guehrer in Melbourne, Emily Seebohm in Brisbane and Blair Evans in Perth, swimmers banded together to host a number of fundraising clinics in their home states.

In all, more than 40 members of the Australian Swim team past and present hosted swimming events in Queensland, Victoria, the ACT and Western Australia as well as pledging a percentage of their winnings at the Summer Swim Series to aid flood relief.

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For more information contact Stormtech Pty Ltd on (02) 4423 1989 or [info@stormtech.com.au](mailto:info@stormtech.com.au)



## Westside Story

SPLASH! spoke with Ross Gage, owner of Westside Swimming in Brisbane, which was completely overrun by floodwater – in fact, the water level actually reached the ceiling of the three-pool swim complex.

“It was a mixture of a bomb going off and someone coming and just trashing the joint and throwing in half a tonne of mud,” says Gage.

“We’re being positive about it – step one was to clean up and get everything out – especially the mud before it set. We went

straight into super clean-up mode. From Day Three we could start to see a little bit of light. We managed to get the swim school up and going pretty quickly because the integrity of the pools was still good.”

Gage heaps praise on the pool industry and his suppliers in particular.

“Des Dylan from Pool Link – he was typical of the industry suppliers who’ve been tremendous. He got his crew back from holidays – they came up from Tweed Heads every day and it was stinking hot work.

“The pools had been in eight years, so they were still good but a bit worn, and this was a chance to spruce them up. Pool Link ground back the fibreglass, put over a new gel coat and anti-mould coat over the top.

“When the families walk in for swim lessons on Monday, they’ll look like brand new pools. I reckon they’ll be impressed – they’re probably not expecting us to be operating at all. We worked flat out for about ten days to get this done, which is amazing.”

Because the floodwaters came right up



It was like a bomb went off, and then someone threw in half a tonne of mud



Mud, mud, everywhere



The floodwaters reached the ceiling of the swim centre

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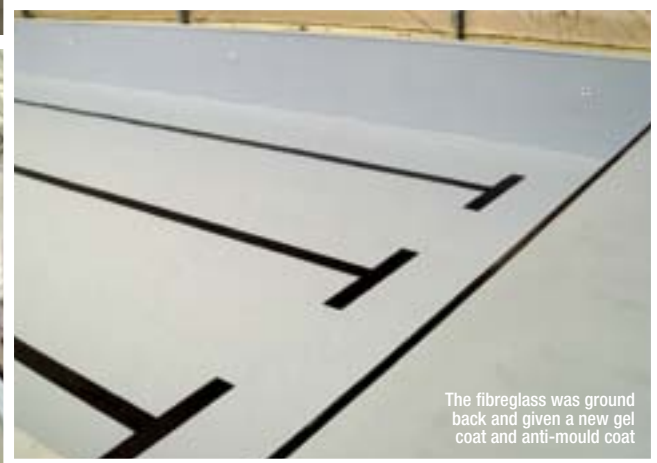
Authorised by the Queensland Government, George St, Brisbane.



In super clean up mode



All hands to the brooms



The fibreglass was ground back and given a new gel coat and anti-mould coat

to the ceiling and everything was completely submerged for three full days, it was unlike a typical storm where some of the building's interior linings are okay. In this instance, everything was gone – the plasterboard was all gone and everything was stripped back to the barest minimum.

"In terms of plant – the heat pumps would cost more to salvage than to buy new ones; same with pumps – so we're replacing all the pumps and the heat pumps. The filters are fine as long as we take precautions so the mud doesn't go back into the lines. We've got to send the water off to waste so the mud gets shot out to waste, and what's in the lines from the filters doesn't go back into the pools."

Gage also says that David Brauer from Ozone One went beyond the call of duty.

"David took the units out and cleaned them all out no cost. The Zodiac people were also great. The industry suppliers were wonderful. It's a great industry, as you know."

Gage was trialling an ozone shunt system installed by Alan Lewis of Aquazure using Ozone One units. The first part of the trial was a twin cell on each pool, which was starting to make a significant difference. It had dropped the chloramine levels down to 0.3 (pretty good for a bather load of up to 187 kids per day), but then on Brauer's advice they added an oxygenator to pump more oxygen in for the ozone, increasing the effectiveness by a factor of five. Before the flood hit, they saw the chloramine level drop to 0.08.

They will have to wait for a while to get the system back up and running. Gage also had a Nubian Blu-I system on trial at the pool. Unfortunately he lost all the trial data, but the trial will recommence.

Gage says Westside Swimming is about 400 metres from the river, but that in this type of flood the river doesn't actually break its banks.

"It's the significant creeks that run into the river that cause the trouble. Normally, they're just a trickle – but the river backed

## Offer a discount

THE website [www.flooddiscounts.com.au](http://www.flooddiscounts.com.au) lists companies that are offering discounts to flooded residents and businesses to help them get back on their feet. Listings are completely free.

You can sign up now as a retailer or service provider offering a discount. There are already several listings under the Plumbing, Pools and Water Tanks section.

up into the creeks and they just went up and up and up.

"We had no flood insurance. A lot of people say you can't get it – but you can if you want to pay the premium. We had storm and tempest, and flash flooding like anyone – but not the actual Flood Insurance. We've been here for 11 years, and if we'd paid the premiums for 11 years, we would have paid more than it cost us to just pick up the costs and start again. If I had second-sight I would have bought a premium last year –but if I'd done it for the past 11 years it wouldn't have paid." 🙄



Ross Gage after a day battling the mud



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# Simple stickers improve the spa experience

**Jennifer Engelmeier from Del Ozone offers some advice on improving the quality of the ozone experience for portable spa owners, at the same time keeping income streams flowing.**

**A**n important issue in spa maintenance is to ensure that the spa ozonator continues to function properly to provide enough dissolved ozone to sanitise the tub. To do this, and to perform other spa system maintenance as well, service checks are required at regular intervals.

Del Ozone is releasing service stickers to help retailers, technicians and customers keep track of service requirements. At present, there is no standard way to do this, and customers in particular are mostly unaware of the fact that parts like the ozonator, which is so critical to water quality, wear out. These easy-to-use stickers will act as a reminder when the 12- to 18-month service interval is over so a spa maintenance appointment can be scheduled.

Spas may last ten years, but spa ozone generators typically last around three years. Del Ozone estimates worldwide there are three million expired ozonators currently in use and in need of replacement. Adding a three-point ozone inspection to every service call will increase the chance an expired ozone generator will be discovered and can result in extra service and sales revenue per visit.

The service stickers will help boost calls for spa maintenance service by educating and informing customers about the need for regular maintenance to keep their spas working well.

When a potential hot tub buyer enters the retail store with the dream of owning their



Families enjoy spas, and like to know they're operating properly



The Del Ozone service sticker

own spa, they picture relaxing, taking in the evening stars, and enjoying the investment they made in healthy water relaxation. The mood lighting, waterfall and inbuilt CD player overshadow mention of the spa's automatic sanitation system which, they hear, is automatic.

All they remember is that they have water that takes care of itself.

The fact is that most ozonators, either corona discharge (CD) or ultra violet (UV), last about 9000 hours. At some point, ozonators stop providing sufficient ozone or fail altogether.

When this inevitably happens, the spa owner will notice a sharp decrease in water quality, but they will not know why. Since they are mostly unaware of the important role of the ozonator in maintaining water purity, they usually will turn to frustrating and often self-defeating attempts to balance water quality through chemicals.

What the owner should do at this point is call the spa technician, but again, they may not be aware of this without some kind of outside help.

With the service stickers, spa techs will have a method to keep track of service intervals with the help of the spa owner. The service stickers will increase the owners' frequency of calls to their dealer or technician for maintenance. Del Ozone now includes a set of three service stickers with its line of aftermarket spa ozonators – MCD-50 high output corona discharge, and the Spa

Eclipse & CDS-16 corona discharge chip ozone generators.

Whether installing an ozonator on a new hot tub or replacing an expired unit out in the field, the spa technician should apply one service sticker directly on the ozonator and, using a permanent marker, note when the ozone generator was installed and when the next scheduled service call will occur – between 12 and 18 months hence.

After applying one service sticker directly onto the ozone generator, the service tech



should attach one to the ozone installation instructions and leave it one with the customer, then place the other sticker on the outside of the spa or in the customer file.

### The three-point ozone inspection


During the scheduled 12- to 18-month service call, the technician can educate the customer about the role of the ozonator in water quality. At this point, they can let the customer know a three-point ozone inspection will be performed to ensure the ozone generator is functioning properly and that ozone is being effectively injected into the water.

As technicians know, just because there are bubbles entering the spa does not mean the ozone generator is producing enough ozone, nor does it tell if the check valve has disintegrated and is now leaking air into the spa.

The three-point ozone inspection includes:

1. Replacing the ozone supply check valve;
2. Visually inspecting the injector or ozone inlet for a fine mist of bubbles; and
3. Testing the ozone generator for adequate output (Del Ozone has a new ozone test

kit which quickly and professionally determines if it's time to replace the original spa ozone generator).

Replacing the ozone generator with a new one will usually ensure that the spa water is healthy once again, improving customer satisfaction with both the spa and the service. 

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Swimming pool equipment manufacturer Waterco has been involved in supplying equipment for the pond market for a number of years. Group marketing manager Bryan Goh offers some advice on the differences between ponds and pools.

The first thing he says is that there are a number of important differences between swimming pools and koi ponds, and he would advise any pool builder looking to branch into this area to properly understand and research the market.

"Like a swimming pool, a koi pond is basically a hole in the ground filled with water, but there the resemblance ends," says Goh.

"A koi pond has a single purpose and that is to provide a suitable environment for keeping koi, and because koi are fast-growing fish that produce a great deal of waste, the main aim is to create and maintain a large volume of water which is well oxygenated and filtered, so the fish can grow and show off their colours."

Goh says it's important that swimming pool builders understand the major differences between koi ponds and swimming pools, so they can ensure the end product meets the expectations of the pond owner by creating a suitable environment for the fish.

"If the swimming pool builder totally understands what is required and how to build a koi pond, then it's not a problem if they want to branch out into this new line of business. However, if they don't understand the technicalities, the consequences can be enormous and, at worst, result in fish deaths and or infections."

Goh says there aren't too many major similarities between swimming pool filtration and koi pond filtration, because the filters are used in two totally different environments. One similarity however is the need for pre-filters – something that has only recently caught on in the residential



# Don't be coy ABOUT KOI

**Fish ponds are becoming an additional earner for some pool builders. We look at some of the similarities – and differences – between ponds and pools, and how builders can add this new revenue stream to their business.**



Ponds attract all sorts of wildlife to a garden



Koi ponds have been popular in Asia for centuries. This image is of a koi pond as a major feature of a housing development in Malaysia. Photo by Amrul Isham Ismail.





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Koi have been bred for centuries to bring out their many and varied colours

swimming pool market, mainly through the success of Waterco's MultiCyclone.

"The filtration is very different as you are filtering totally different material which is much larger in mass such as pond weed, fish food and fish waste. The choice of filtration will depend on whether the pond is to be a pump fed or a gravity fed system. In many cases, large pre-filter systems are required such as vortex chambers and/or sieves as well as a main filtration system that in many cases is used both as a mechanical as well as a biological filter. This literally traps the solid wastes and removes them from the water flow and provides a large surface area to support the growth of beneficial bacteria that breaks down pollutants in the water.

"Such filters can be single or multimedia chambers as well as bead filters. Bead filters may look like a sand filter but in fact work in the complete reverse such as Waterco's Aqua-biome skid pack. The filtration system is not only designed based on the volume of water but also the quantity and size of fish, anticipated feeding cycles and the amount of fish waste."

### New ponds and conversions

Matthew Lai is the principal of The Fish Works, a water garden specialist located in Sydney's Terrey Hills. His company specialises in the building, filtration and maintenance of koi ponds. They also breed and sell quality koi.

Although they mainly build ponds, they have also consulted for pool/pond conversions, which the pool builder would then undertake under The Fish Works' guidance.

"People build ponds in their backyards for many different reasons," says Lai. "Ponds attract

birds, lizards and insects, and can provide a home for fish, tadpoles, frogs and yabbies.

“And of course, some people who build large ponds often choose to keep koi carp, which the Japanese have selectively bred for hundreds of years to produce many different colour varieties, often with their own mythology surrounding them.

“Koi swim with grace, and add to the aesthetic qualities of the pond; but they need space to thrive and be healthy. A pond of at least 1000 litres is necessary and a quality filtration system is essential to ensure that the water they live in remains crystal clear.”

Lai says he’s found it increasingly popular for people to convert their swimming pool into a fish pond, particularly for retirees or people who don’t use their pool as often as they used to.

He agrees with Goh that koi ponds have very different filtration requirements than swimming pools, as they have to deal with fish waste, algae etc, without the use of chemicals that would harm the fish and plants in the pond (such as chlorine).

“The filter must be converted into a biological filter, which utilises good bacteria to break down harmful waste chemicals. An ultra-violet (UV) system can also be used to kill single-celled algae in the water. Advice should be taken from your local pond shop if you are thinking of undertaking a project such as this.”

Lai says that the pump should push the water through at a turnover rate of at least 1.5 times per hour to ensure good circulation, aeration and filtration.

Ponds can be constructed from a variety of materials, such as EPDM rubber liner, concrete, brick etc, or a prefabricated plastic or fibreglass moulded pond. Lai says that if choosing a liner, it’s important it be EPDM,



Fountains and bubblers help increase the oxygen in the pond



Surface plants help restrict the growth of blanket weed

## “The air we breathe contains about 21 per cent oxygen – the water fish ‘breathe’ has less than one thousandth of one per cent oxygen.”

which is the only one that is UV-stabilised, meaning it should last at least 20 years.

Once a good filtration system has been installed, maintenance on the pond is relatively easy.

“The filter needs to be backwashed periodically and the leaves scooped out of the pond. Yellowing leaves on water plants should be trimmed and discarded. The water should be tested about once a month to make sure ammonia levels are at zero, and the pH is close to neutral (approx pH =7). The fish must be fed everyday in the warmer

months, but only a couple of times per week in the winter. If the owner is away on holidays, the fish can go a couple of weeks without food. There are pond maintenance services available.”

Koi can mix happily with most other pond fish, such as goldfish and native fish including silver perch, bass and rainbow fish.

“But koi can sometimes eat softer floating plants such as waterlilies, so if the owners have their hearts set on a waterlily pond, then native fish and/or goldfish may be better bets.

“If you want your pond to be a frog pond, then only small fish such as rainbows, pacific blue eyes, mountain minnows etc, can be kept. Larger fish eat frogs’ eggs and tadpoles.”

Lai recommends a variety of possible water plants, including iris, rushes, lilies, lotus and water poppies.

Lai says another thing to consider is that in most council areas, ponds will still need to be fenced if they are deeper than 300mm; so you’d have to check with the local council.

## Let the fish breathe

Clearpond has been in the watergarden business for nearly 20 years, focussing on residential garden ponds and water features, as well as large public and commercial fountain displays, and more recently on lake man-



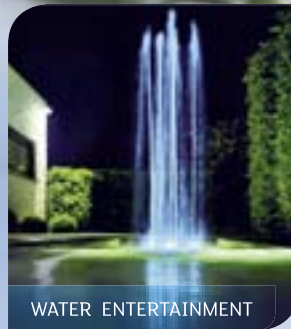
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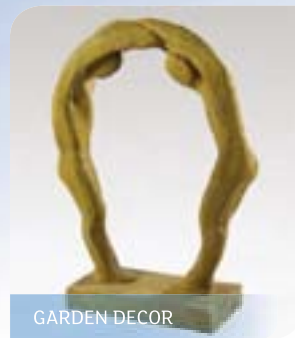
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agement. The company is headquartered in Perth, with distribution centres in Melbourne and Auckland and account managers based throughout Australia and New Zealand, providing local support and service to a dealership network of more than 100 stores.

Managing director Michael Cave offers some advice regarding the building and maintaining of koi ponds.

As with swimming pools, the first thing to consider is siting.

"If you have both sun and shaded areas that you were considering installing a pond, the shaded areas would be preferable," says Cave. "Most plants prefer a little shade, and it is only the lilies that prefer at least half a day of full sun.

"If the pond is in full sun, accessories such as UV filters can guarantee clear water when used correctly. They work on a principal of radiating water containing algae cells, effectively killing algae before it can bloom in your pond. The chance of a pond in full sun getting too hot is almost negligible when a pump is moving water, as moving water releases stored heat more quickly than a stagnant pond, and if a minimum



A Fish Works' koi pond under construction

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## Slow pumping

Pentair suggests that, in the case of ponds which usually require constant turnover, traditional pumps run at maximum speed no matter how much is really needed to meet the turnover requirement. They suggest a variable speed pump such as their IntelliFlo could optimize flow and use only the electricity that is necessary to get the job done.

depth has been applied then you should have no worries."

Cave says that it's very important to ensure fish have enough oxygen in the water to be healthy.

"The air we breathe contains about 21 per cent oxygen," he says. "But the water which our fish 'breathe' has less than one thousandth of one percent oxygen – normally from 6 to 10 parts per million, depending on the temperature.

"Fish have to pump a great deal of water through their gills to extract this oxygen. In fact rainbow trout expend 32 per cent of their total energy just breathing! This helps to explain why an oxygen shortage in your pond can be disastrous for the health and growth of your koi.

"We think of oxygen as a gas, but it's no use to your fish unless it is dissolved in the water. Fish can't breathe bubbles. Oxygen is absorbed at the surface of the pond, but this happens only very slowly and certainly much too slowly to meet the demands of the fish, algae and mulm."

Mulm is the undecomposed fish wastes and other solid matter that accumulates in

the pond as a fine, brownish, fluffy material. Algae and mulm compete with the fish for oxygen in the pond and can use up a great deal more oxygen than the fish.

Cave offers some numbers as a rough guide:

- 1000 litres of water saturated with oxygen at 8 parts per million contains only 8 grams of dissolved oxygen.
- With no wind, one square metre of pond surface will absorb just one one-hundredth of one gram of oxygen per hour – that's 0.01 grams per hour.
- Fish health is compromised when oxygen falls below 6ppm. Ten kilos of fish will consume about 3 grams of oxygen per hour which will deplete 1000 litres of saturated water to unsafe levels in about forty minutes.
- 1000 litres of green water with a biological oxygen demand (BOD) of 20mg/l will consume around 20 grams of oxygen per hour – that's the same amount of oxygen as would be consumed by about 70kg of fish.
- A mulm-laden pond bottom, settling tank or filter void will consume 3 grams of oxygen for every square metre of muck-laden bottom surface area.

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**“Bubblers, venturi, waterfalls and splash aeration are all good and should be included in any pond design.”**

- Each kilogram weight of fish produces about one gram of ammonia per day, which requires more than four grams of oxygen for total assimilation into the biological filter.

“With so many organisms competing with the Koi for the available oxygen and such a tiny amount of oxygen available from the pond surface, it’s easy to see why fish die so quickly when there’s a pump failure – even for just a few hours,” he says. “It’s also easy to see why supplementary aeration is so important. Bubblers, venturi, waterfalls and splash aeration are all good and should be included in any pond design. Air pumps provide far more aeration than do water pumps of the same power consumption. Oxygen tests are cheap and easy to use and you should test your water if in any doubt about the quality of the aeration.



A bank of MultiCyclone pre-filters



A koi pond plant room featuring Waterco equipment

“With proper aeration, fish are more active, school and linger longer in backwater areas, eat more, and grow faster – after eating they are far less lethargic and, in the longer term, will be far healthier and resistant to disease.”

**Aquatic plants**

Cave says that before stocking the pond with fish it is essential to plant it to provide a healthy environment for the fish.

“Aquatic plants produce oxygen, offer shelter, food and a good spawning environment,” he says. “Most important of all, they help prevent the water from going green.

“Green water is a perennial problem and the answer to clear water is the right balance of plants and/or filtration methods. Green water indicates the presence of masses of algae, microscopic forms of plant life not harmful to the fish but unsightly to the human eye. Their energy sources are light and mineral salts, both of which are found in abundance in a newly filled pond. Deprived of these, algae will be starved out of existence and the water will clear.”

To achieve the correct biological balance in the pond, Cave recommends a collection of the following:

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**Oxygenating plants:**

These are important – they thrive on mineral salts and other nutrients in the water. So once established, the oxygenators will help take care of the algae problem. Oxygenators are also beneficial to fish as they give out oxygen during the day.

**Deep water aquatics:**

The most well known in this group is the lily. With its large colourful blooms it will form a focal point in the pond. Half to two-thirds of the water surface ideally should be covered with lily pads and other floating foliage at the height of the growing season to help combat the problem of excess light.

**Floating plants:**

These help to control blanket weed and algae as again they help to cut down the amount of sunlight on the water surface.

**Marginal plants:**

These are more for decoration than for balance. They help breakup the formal edges of a pool, giving a more natural appearance. There are many varieties providing striking contrast of foliage and colour.

Cave says that shortly after planting a new pond, you'll witness the balancing act at work.

"First it may turn pea green," he says. "Don't worry, it nearly always happens, but be patient! Do not change the water as you will be introducing a fresh lot of mineral salts and you will be back to square one. A reddish tinge will appear around the edge of the pool, then the water will clear. This could take one week or ten, depending on water chemistry, plant density and the seasonal elements, but it will happen eventually and the water will then stay clear unless the balance is upset. For those who can't wait for the pond to clear, use algacides to help

remove algae, alternatively install an external or internal biological filter."

A final note is on the fish being eaten by cats and birds. Cave says that in an outside pond, fish can be very vulnerable to predators – but a minimum depth and some surface cover are all that is required to keep them safe. Bird/cat netting is available which stretches over the pond at surface level that can be used in more difficult situations. It is fastened around the edges of the pond with stakes or tent pegs, and is almost invisible to the eye when stretched taut. ☺



Plants create oxygen for fish, provide shade and shelter for spawning

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### Tuesday 3rd May

9.00am-12.00pm NSPI workshop  
2.00pm-4.30pm WACH Sessions  
Singapore Night Safari

### Wednesday 4th May

9.30am-4.45pm Education Program  
9.30-5.00pm Trade Show Open  
5.00pm-6.30pm NSPI Welcome Reception

### Thursday 5th May

9.30am-4.30pm Education program  
9.30am-4pm Trade Show Open

### Friday 6th May

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## The Accommodation

SPLASH! has negotiated some great deals at the two hotels which connect with the Raffle City Convention Centre – for ease and convenience book now!

### Swissôtel The Stamford - (2 Stamford Road, Singapore)

The Stamford offers 1,261 guestrooms and luxury suites, 16 restaurants and bars, Equinox Complex and Willow Stream Spa, complete with panoramic views of Singapore, Malaysia and Indonesia. Hotel facilities include 24 hour room service, business centre and executive club facilities. Rates from \$249 AUD.



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The Fairmont hotel offers 769 luxurious guestrooms and suites, a collection of 16 distinctive restaurants and bars and 70,000 square feet of prime meeting space. In addition, guests of Fairmont Singapore have access to the Willow Stream Spa, one of the largest spa facilities in Asia, offering the best in spa and fitness services. Hotel facilities include 24-hour in-room dining, basement parking for up to 1000 vehicles and hotel mobile extension services. Rates start from just \$265 AUD.



## Need a flight?

Qantas is the official carrier for the SPLASH! Asia Pool and Spa Trade Show. Book online with Qantas and save time and money. Online airfares are cheaper than booking over the phone. Plus, you'll have access to all the latest fares. [www.splashasiaexpo.com.au/accommodationandflights](http://www.splashasiaexpo.com.au/accommodationandflights) to book now



Poolside location for reception

## Welcome Reception

“Join NSPI and SPLASH! at the Welcome Reception. Wednesday 4th May 2011 from 5pm at Alligator Pear, pool side at Swissotel – its **FREE** for delegates and exhibitors to attend. Building on the success of Queensland, and New Zealand, SPLASH! Asia will pave the way for this event to become the “Must Attend Event” for the wet industry in the Asian Pacific region, and NSPI Australia is delighted to welcome you to Singapore, and sponsor the Welcome Reception as the opportunity for local, national and international delegates and exhibitors to meet and network.”

See you there - David Close Director – NSPI Australia.

## Exhibitors Confirmed

- Albatross Pools
- AstralPool
- Classic Above Ground Pools
- Clevaquip
- Designer Beadcrete
- Emaux Water Technology PL
- Enviroswim
- Fluvo
- Heliocol Solar
- Hexagone Robotics
- Manufacture/Water Australia
- HornerXpress
- Worldwide Inc.
- Magnor
- Magnum Filters
- Meddings Thermalec Ltd
- National Swimming Pool Foundation
- NSPI Australia
- Pentair Water
- Pool Water Products
- Propulsion Pools
- Remco Australia
- Stern's Pools
- Skypebble
- Smartpools™ International
- Spa Electrics
- Sport and Recreation Management Singapore
- Supreme Heating/PJ Pools & Spas
- Toyesi Pty Ltd
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- Wonder Light Industry Mach. & Elec. Products (Zhongshan) Co.,Ltd.
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# Conference Program - REGISTER NOW!

## TUESDAY 3<sup>RD</sup> MAY



### 9.00am-12.00pm **Fundamentals of Pool Management** **Bernie Skelton, NSPI accredited specialist**

The health and safety of staff and patrons is a paramount concern in pool management. This seminar covers safe storage and handling of pool and spa chemicals, the interrelationship of chemistry and sanitisation in pool water, and pool management practices. Participants will learn about the key areas of pool and spa chemical safety, the effective use of those chemicals in maintaining sparkling healthy water, and how to deal with contamination incidents, returning water to safe and healthy balance. Information provided in this course is based on Singapore legislation and Codes of Practice. Bernie Skelton has worked in the pool and spa industry for over 20 years and is considered one of the foremost speakers on pool chemistry in Australia. Bernie is an NSPI trainer and is a highly respected member of the Lo-Chlor Chemicals team.



### 2.00pm-4.30pm **World Aquatic Health™ Conference (WAHC™) session - moderated by Tom Lachocki, CEO, NSPF**

“Recreational Water Illness – Lessons Learned” – Michele Hlavsa, Centers for Disease Control & Prevention – Video presentation. “The Good, the Bad and the Volatile: Can We Have Both Healthy Pools and Healthy People” Dr. Judy LaKind, LaKind & Associates, LLC – Video presentation

## WEDNESDAY 4<sup>TH</sup> MAY

### 9.30am-10.30am **Water Chemistry - Tom Lachocki, Chief Executive Officer, National Spa and Pool Foundation (NSPF)**

Water Chemistry The most important line of defense to prevent the spread of recreational water illness and to protect the facility from damaging effects of water is to maintain proper water chemistry. This presentation will review the options to maintain water in a sanitary state with descriptions of the many disinfectant options available. In addition, the principles behind water balance will be presented to better prevent corrosion of surfaces or equipment or the formation of scale.



### 11.00am-12.00pm **Water Safety Management - Delphine Fong, Director, Sports Safety, Singapore Sports Council**

Residential property developers are increasingly adding pool facilities to increase the value of their properties to prospective buyers. Although these swimming pools are frequently used by children, these facilities remain largely unsupervised. According to statistics provided by the Registry of Births & Deaths (RBD), 73 people on average died by drowning in Singapore between 1960 and 2005.

Water safety is a major issue for Singapore. This presentation aims to facilitate understanding of approaches on water safety management including intervention strategies aimed at reducing the risk of pool related drowning. Many factors can play a role in raising the standard of water safety in Singapore, including proper supervision by trained lifeguards or caregivers, the level of people's water safety skills, pool design, rescue equipment and facility lighting.

### \*12.30pm-1.15pm **Green Technologies in Swimming Pool Application - Hugh Smith, Pentair Water Pool & Spa**

### \*2.00pm-2.45pm **Standards - Ian Brown, Royal Life Saving Society Western Australia**



### 3.00pm-3.45pm **Solar Pool Heating** **Tom Giannoulis, Solar and Pool Heating Manager, Zane Solar pool heating**

This session will look at how Solar pool heating systems operate, different types of systems and the different types of materials used in construction of a solar pool heating systems. Then the three most common forms of heating (solar, gas and heatpumps) will be compared showing the pros and cons for each type of heating as well as how they can be integrated together. Tom comes from the HVAC (Heating, Ventilation and Air Conditioning) industry with 28 years experience in heating and cooling applications. He has been involved in heating and cooling of air and water over this period of time and also operated his own business designing and installing heating

and cooling equipment. In July 2009 Tom was appointed the Solar and Pool Heating Manager for Zane Solar pool heating



### 4.00pm-4:45pm **Taking advantage of the new energy efficient pumps - Mark Portbury, Category Manager Hydraulics & Automation, Zodiac Group Australia**

This session will illustrate the benefits of switching to the newest technology in energy efficient swimming pool pumps. The Fundamental concepts of the relationship between power consumption, Flow rates and RPM of pumps will be demonstrated.

## THURSDAY 5<sup>TH</sup> MAY

### 9.30am-10.30am **Water Chemistry Advanced** **Tom Lachocki, Chief Executive Officer, National Spa and Pool Foundation (NSPF)**

Although proper sanitizer/disinfectant levels, pH and water balance prevents most water chemistry issues, there remain many other specialty products to solve problems and prevent pool/spa water problems. This presentation will review many problem solving options including algaecides, stain and scale prevention, metal complexing agents, sunlight stabilizers. In addition, there will be a brief review of the many other technologies entering the market including ozone, UV, chlorine dioxide, ultraviolet light, etc



### 10.45am-12.15pm **Hydraulics and Pump Selection** **Hugh Smith, Pentair Water Pool & Spa**

Learn how to set flow rates, calculate total dynamic head and select a pump for existing equipment. Understand the limits of existing equipment, how to create a system head curve and how to identify and avoid hydraulic problem areas.

### \*12.15pm-1.00pm **Marcus Ng, Innovez Sports Technologies Pty Ltd**



### 1.00pm-1.45pm **Commercial Filtration - Sam Schuckert, National Commercial Manager, Waterco Limited**

The commercial filter is one of the key components to the proper operation of Aquatic Facilities in terms of keeping the pool water clean and maintaining an effective disinfection process. However, many engineers have varying ideas concerning the type of filter to be used and the operating parameters of commercial filters. This brief discussion will cover the basics of how filters works, the different types of filters, the basic operating criteria, the different backwash procedures and parameters; with the goal that it will lead to productive and open discussion on commercial filtration systems. Sam Schuckert has over 30 years experience in Commercial and Industrial water treatment. His career in Commercial and Industrial water treatment has taken him from England, to New Zealand, back to USA (where he was as vice president of ANCO chemical and engineering company), and to Australia. For the past six years he has been the National Commercial Manager for Waterco Limited.



### 2.30pm-3.30pm **Turning Green Technologies to Gold** **Bill Kent, Team Horner**

The future of the Pool Market will depend on the adoption of a strong sustainability strategy. Pool professionals must commit to “greening” their businesses and embrace not only the newer energy efficient technologies but also pledge to change their attitude toward reduction of waste and implementation of an energy conservation plan. Developing a green strategy based on getting lean, smart, creative and engaged is not only good for the environment but great for the bottom line. Objectives: Focus on execution of a green strategy. Cope with environmental pressures and responsibilities. Spark innovation that will drive long-term growth. Anticipate and manage serious business risks. Be good stewards of the Earth while increasing profits!

### 3.45pm-4.30pm **Vendor presentation - Faizan Khan, Co Founder and Executive Director of SmartPools™ International**

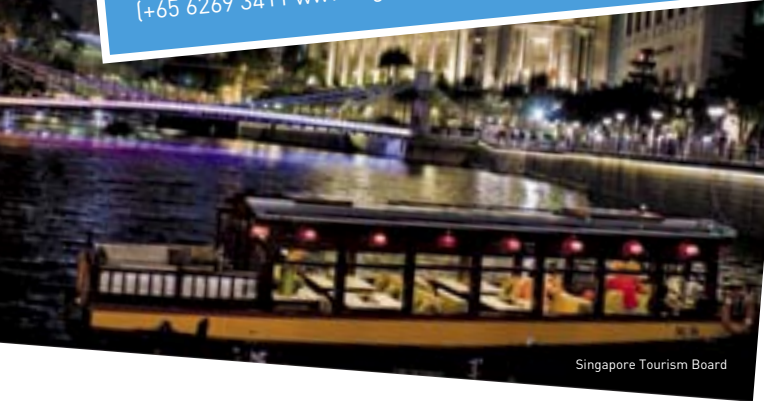
How SmartPools' intelligent swimming solutions save time, money, and space and are transforming the property market, changing mindsets and the quality of life of discerning home owners, resorts, health care centers, and schools internationally.

\* Check [www.splashasiaexpo.com](http://www.splashasiaexpo.com) for more details

# Singapore Must-Dos

## Singapore Night Safari

Through the use of special lighting techniques, the highly lauded open-concept night zoo allows you to observe what 900 nocturnal animals get up to after dusk, in naturalistic habitats – and, seemingly, not behind barriers. The 45-minute narrated tram ride is the best way to see the animals – which include tigers, lions, giraffes and rhinos – from the safety of your seat. After the trip, brave the dark walking trails to get a closer look at smaller animals such as flying squirrels and dangling bats. 80 Mandai Lake Rd. [+65 6269 3411 [www.nightsafari.com.sg](http://www.nightsafari.com.sg)].



Singapore Tourism Board

## Singapore River Cruise

See the city from the water on a no-frills 30-minute journey aboard a bumboat. You can buy tickets and board or alight at any of the nine jetties along the Singapore River, including the Esplanade, the Fullerton, Riverside Point, Boat Quay and Grand Copthorne Waterfront Hotel. Boats run daily (9.30am–10.30pm); it's quite a sight at night when the skyscrapers are lit up. The bizarrely accented recorded commentary is uniquely irritating. (+65 6336 6111/19 [www.rivercruise.com.sg](http://www.rivercruise.com.sg)).

## Getting a fish pedicure at Underwater World

Don't inflict your stinky feet on some poor pedicurist. Instead, let the fish take care of them. A shoal of industrious little Turkish fish wait in a pool to nibble away dead skin and leave your toes fresh and exfoliated. Fish reflexology \$35 for 20 minutes in the pool and 20 minutes foot reflexology. Underwater World, 80 Siloso Rd, Sentosa. ([www.underwaterworld.com.sg](http://www.underwaterworld.com.sg)).

## Walking over the Helix Bridge

The weird, DNA-like, wiggly steel pedestrian bridge at Marina Bay supports some 16,000 people at a time and stretches 280 metres across the water. Marina Bay. ([www.ura.gov.sg](http://www.ura.gov.sg)).

## Boarding the Swarovski Cable Car

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## Getting a tarot card reading by a parrot in Little India

Walk around Tekka Market in Little India, and more likely than not you'll come across a weathered Indian woman with her faithful parrot, Money Money, both ready to tell the fortune of any passerby, for \$5 per reading. Near the Tekka Market steps, Serangoon Rd.

This information is thanks to

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## SPLASH! Asia Post Show Golf Day

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Due to ferry transfers a minimum of 20 players are required.

