

# Green Algae Cures: *Here Comes Algae Season*

By Terry Arko  
Hasa Pool

While there may not be a cure for the summertime blues, fortunately for pool pros there is a cure for a green pool. Summer is prime season for algae growth in pools. Heat and increased swimmers are two of the main culprits of summer algae. Lack of proper chemical treatment, phosphates, insufficient water movement and high cyanuric acid are some other ways that algae will come to be comfortable in the pool. As the peak of summer approaches, it is vital that pool pros are prepared to deal with invasive green algae.

### Know the enemy

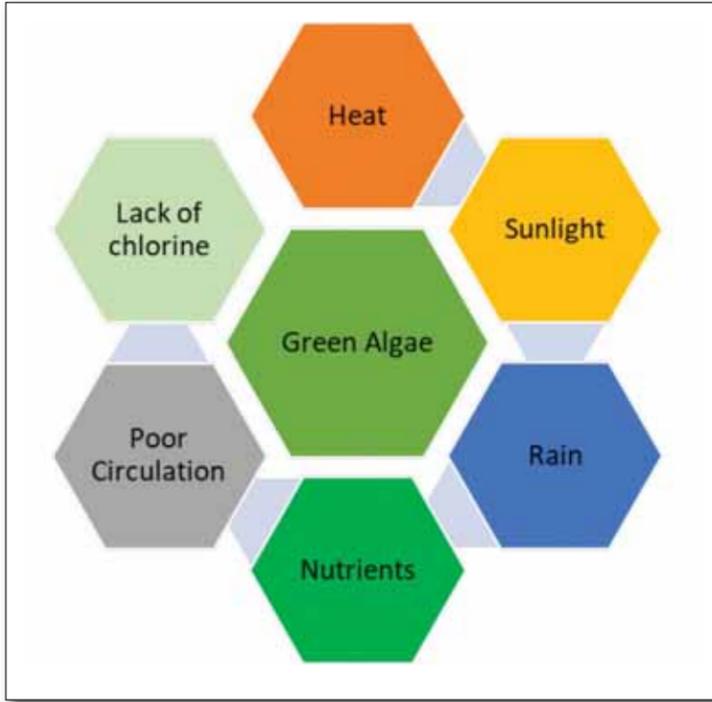
Pool pros know that a pool turning green in the summer can be a real battle. Any military strategist will tell you that the best way to win a battle is to know the enemy. In the case of green algae, it is imperative to know what it is that causes the algae to enter the pools and to thrive. Green algae are single celled organisms that have been evolving since the beginning of time. There are thousands of species of algae. The ability to identify and properly treat the differing forms of pool algae can help to keep customers pools clear and algae free.

### Identifying Green Algae

This is a free-floating form of algae which is very common in pools where chlorine sanitizer is lacking. Green algae spread rapidly and may double in population in as little as 8 hours. While green algae primarily floats, it can also attach to walls and pool floors causing very slippery surfaces. Green algae will cause the water to be extremely cloudy and unsafe for swimmers as well. While green algae are not bacterial, they may harbor certain bacteria which can make it more difficult for chlorine to work. One type of bacteria that green algae may contain is cyanobacteria. This form of bacteria can be harmful to humans and animals. This is one reason why an untreated green algae pool should be dealt with immediately. An untreated green pool could become a breeding ground for mosquitos. Green algae will also cause the pH of the pool water to increase. The reason for the increased pH from a green pool is due to the algae taking in CO<sub>2</sub>. As CO<sub>2</sub> leaves the water the pH will drift upward.

### Causes of Green Algae:

One of the main causes of green algae is simply the lack of chlorine sanitizer during the hot summer months. Other contribu-



tors can be heavy swimmer load, yard debris, fertilizer and rain. Primarily in the summer it is the lengthy and excessive heat combined with longer days of sunlight. Add nutrients such as nitrates, phosphates and slow-moving water due to poor circulation and you have a perfect recipe for a green pool. One additional contributor to the growth of green algae could be the presence of iron. Especially in pools that are filled from wells there can be high levels of iron. Iron gives algae the ability to take in carbon dioxide CO<sub>2</sub> and it also speeds up the process of photosynthesis from sunlight.

### How to Treat Green Algae

Most pool experts will agree that chlorine is one of the best algaecides available. In the case of green algae liquid sodium hypochlorite (chlorine) is one of the best because it is in solution and works to rapidly disrupt the cell membrane of the green algae. The cell membrane acts as a house for the organism. In a sense the liquid chlorine treatment is equivocal to a bulldozer being driven through your house. Once the house is knocked down there isn't any shelter left for the organism from the toxins. Brushing the walls and floors to disrupt any clinging algae is important. If using liquid chlorine sanitizer, it is recommended to use 1 gallon per 10,000 gallons of 12.5% sodium hypochlorite. This will achieve a 12.5 ppm free chlorine. In cases where the algae are very thick with mats floating on top and growth on the walls and floor, the treatment may need to be doubled or tripled. In very heavy cases 2 to 4 gallons of liq-

uid sanitizer for every 10,000 gallons of water may be added. It could take several shocks of chlorine over many days before the pool completely clears. Care should be taken in pools with dark plaster or colored aggregates as high dosing could bleach the surfaces. It is recommended to dilute in water first and add slowly in the deep end away from any rails and light rings.

A faster method of clearing a green pool may be to incorporate the addition of an ammonium-based algaecide prior to the chlorine shock. Quaternary ammonia algaecides can be very effective when used in conjunction with a chlorine shock. The ammonia-based algaecides work by reacting with chlorine to create monochloramine and dichloramine. These two species of combined chlorine are very powerful algaecides. There are also dry ammonium salts that can be used. These are added prior to the chlorine. These systems can turn a green pool to blue usually within 24 hours.

Next is proper circulation. Water that moves is healthy water. Water that is still can harbor algae and bacteria. During the hot summer months, it is important for the pool to get plenty of good circulation. Whether the pump is a single or variable speed you should know the gallons per minute (gpm) flow rate of the pump. You should also know what the maximum allowable flow rate of the filter is. If the filter is not sized properly for the flow of the pump this could lead to poor water movement. Check with your equipment manufacturer to determine the proper

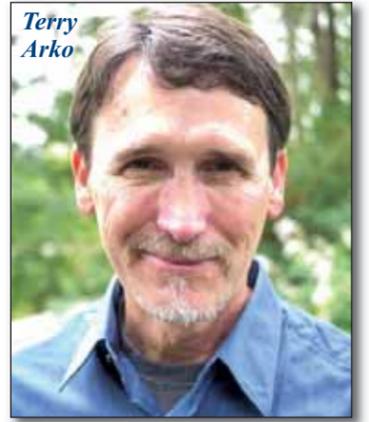
pump and filter ratios. Ideally, the pump and filter system should be set up to obtain at least two turnovers of the pool in 24 hours. Turnover is when the entire amount of water in the pool passes through the filter once. Most backyard pools may not even accomplish one complete turnover of the water in one day. This could explain why algae and cloudy water are problems in the summer.

### Keeping the Green Away

Just because the pool has turned back to blue isn't a guarantee that it will stay that way. In many cases green pools that have been remediated tend to flip back to green again. This has to do with several key causes that create a resistant form of algae. Here are some of the reasons blue pools flip back to green in just a few weeks after treatment.

- High phosphates
- High cyanuric acid CYA
- Improper chlorine to CYA ratio
- Lack of proper algaecide or algaestat

If a pool was heavy green with lots of algae, then that means lots of phosphate returned to the pool. As algae die, they release phosphate back into the water. Phosphate is one of the prime nutrients for algae growth and since algae spores are always present even in blue pools it only takes a drop in free chlorine and the algae can feed on the phosphate. And that scenario creates a



higher chlorine demand and gives algae the perfect storm for a return. Phosphate should be tested and maintained no higher than 500 ppb (parts per billion). The ideal phosphate level should be 200 ppb. Salt chlorine generator pools must keep levels below 500 ppb in order to ensure proper free chlorine levels.

It is well known now that high levels of CYA, anything over 60 ppm can hinder the killing agent of chlorine from doing its job. Hypochlorous acid (HOCl) is the killing agent chlorine produces when added to water. If the HOCl is not at the proper level to inactivate both bacteria and algae, then the pool water becomes more difficult to manage. Research has proven that even at a CYA level of 30 ppm and a free chlorine level of 2.0 ppm there is not enough HOCl

*Continued on page 12*

## ARE YOU CONVINCED YET?

- Business Income Loss Replacement
- Pool Inspection Coverage
- Accident Medical Coverage
- Faulty Workmanship Coverage
- Coverage For Chemical Claims
- Optional Remodeling Coverage

**IPSSA members have the best insurance available anywhere!**

### Arrow Insurance Service

(800) 833-3433 / CA DOI License No. 0757776



## Let us know!

One of the great things about IPSSA is the underlying commitment to help others in the industry. After all, this association was created on the principle of sick route coverage. But, many members go above and beyond sick route, helping other

members and their communities. These are IPSSA Heroes. Tell us your story, or let us know who has helped you. Email us at [info@ipssa.com](mailto:info@ipssa.com).

## IPSSA CODE OF ETHICS

As a member of the Independent Pool and Spa Service Association, Inc., I will utilize my professional knowledge and skilled practical workmanship in providing quality customer service. To that end, it will be my responsibility to keep informed of developments in the pool and spa industry including new techniques and product applications.

My second obligation will be to the members of IPSSA by giving them any professional assistance they may need including sick route coverage. With respect to sick route coverage, I will treat sick route clientele with professionalism and respect, and will not solicit the business of a sick route client while providing sick route coverage.

My final responsibility will be to my community and its citizens. I will strive to communicate the necessity for pool safety and other issues of importance to pool and spa owners.

In these ways, I will promote the ideals and objective of the Independent Pool and Spa Service Association, Inc.



## VOLUNTEER SPOTLIGHT

IPSSA's newly launched Volunteer Spotlight feature puts our amazing volunteers front and center in the IPSSA Community! We want to use this unique opportunity to thank the wonderful individuals that continuously donate their time and energy to help IPSSA and the pool and spa industry thrive. We encourage all IPSSA members to connect with these star volunteers to let them know about the Spotlight. To be featured in our next Volunteer Spotlight, in the IPSSAN, Face Book and YouTube email your picture, pictures of any information that supports the spotlight, and answer a few questions. Forward to [info@ipssa.com](mailto:info@ipssa.com).

1. Tell us about yourself
2. Tell us about your volunteer experience with IPSSA. Project in the past that would be featured as a spotlight.
3. Why did you decide to become a volunteer
4. How has volunteering impacted your career
5. How has being involved with IPSSA made a difference in your community or outreach to the public

# On the Lighter Side: “Off the Deep End” Pool Bob’s Hydro-Eclectic Musings

By Robert Blade

In the good old days, when a sailor fell overboard and was fished out by fellow shipmates, CPR was provided somewhat differently than today. The water-logged sailor was placed, face down, on a tipped over wooden barrel and then, rocked back and forth, to clear the flooded lungs, hopefully. The expression, “they’ve got you over a barrel,”

means you are at their mercy, whether they know what they are doing or not. It must have worked often enough in the past. Who knows, maybe, someday, we will be required to have wooden barrels provided, next to the life ring, reach pole and signs, at all the commercial pools.

The brand new Taylor K-2005 test kits come with a new updated Pool and Spa Water Chemistry booklet, that includes new borate

and cyanuric acid corrections for alkalinity charts, on the last page. I am glad they are following the current “Better with Borax” pool chemistries. Pool techs, in the know, have been finding their borated pool waters are sparkling clear, silkier feeling to the bathers, more algae free and best of all, those pesky “pool bugs” (wasps, striders and those nasty biting “water boatman”) drown from the reduced water surface

tension. The Taylor S-1342 borate test strips accurately measure between 0-100 ppm and help pool techs achieve the ideal 50 ppm. Now, if we could just get the distributors to start stocking  $\text{Na}_2[\text{B}_4\text{O}_5(\text{OH})_4] \cdot 8\text{H}_2\text{O}$ , instead of having to fetch it at grocery store’s laundry aisle.

*About the writer: Robert (Bob) Blade operates Aloha Pool and Spa and is a 20+ year member of the Monterey Coast IPSSA*



Robert Blade

*chapter, a past chapter president, Region 10 secretary and PIE Show museum curator.*

## What might be heard at Mount Rushmore about Salt Water Pools...

I check the salt level and only use **AQUASALT**.

I keep the pH in the correct range.

I clean the cell every 2 to 3 months of use.

I add conditioner as needed, honestly.

# AQUASALT®

[www.aquasalt.com](http://www.aquasalt.com)

George Washington  
1st President

Thomas Jefferson  
3rd President

Theodore Roosevelt  
26th President

Abraham Lincoln  
16th President

## Green Algae Cures

*Continued from page 9*

produced to effectively kill bacteria and algae.

This leads to the next point, the proper CYA to chlorine ratio. Experts in the industry have determined that in order to obtain the proper killing ability of HOCl free chlorine must be at 7.5% of the CYA level.

Example:

$\text{CYA } 30 \text{ ppm} \times 7.5\% = 2.25 \text{ ppm}$

$\text{CYA } 60 \text{ ppm} \times 7.5\% = 4.5 \text{ ppm}$

From the example you can see that if you had a CYA reading of 60 ppm it would take 4.5 ppm of residual free chlorine to keep algae out of the pool.

Lastly, it is vital in the summer to keep an algaecide or algaestat in the water. This is especially helpful during the hot months and can help to quell an outbreak if the chlorine level sinks too low. Some suggestions are use a good high strength quaternary ammonia algaecide like a 60%. Poly-Quat algaecides work well also. These are two of the most effective against green algae.

A good way to reduce the potential for an algae outbreak is by using an algaestat. One product that has become popular recently is borate. Borate is a great way to improve the water quality of the pool overall and it also acts as a buffer to keep the pH from rising. One other great benefit of borate use is that at 50 ppm of borate you can reduce the chlorine to CYA ratio to 5%. So, for example:

50 ppm Borate

60 ppm CYA  $\times 5\% = 3 \text{ ppm}$

With borate you can get the proper killing agent HOCl and use less chlorine to obtain it. There are several different borate products available on the market.

### Best Practices for Keeping Green Algae Out of the Pool

- Use Liquid Sodium Hypochlorite to Shock and Sanitize
- Use a Phosphate Remover to Keep Phosphate Levels Below 500 ppb
- Manage CYA levels between 30 to 50 ppm (Reduce use of tri-chlor tablets or switch to liquid sanitizer)
- Maintain the chlorine level at 7.5% of CYA
- Good circulation and filtration
- Use ammonia-based algae treatments
- Add borates at 50 ppm to prevent algae and keep pH from drifting up. Also reduces the chlorine CYA ratio to 5%.