



Currents

**BIOLOGICAL
APPROACH
to
AQUASCAPING**

**EARTH DAY
EVENT!**

**NEWSLETTER
EXCHANGE
KWAS to the
RESCUE!**

...and MORE!



Pictures
of the
year!





“Patrick S”

**OVAS FORUM
PICTURE OF THE YEAR
IT'S A 3-WAY TIE!**



“jojo621”



“Chubs”

THE FIRST SPLASH

Happy New Year to all OVASians! I wish you all a very successful and fun-filled year in your aquaristic endeavours!

For those of you thinking of becoming an OVAS club member, January is good time to join. Membership prices are discounted as we approach the half-way mark of the 2011-12 season. There are still many events to enjoy: our monthly meetings, the annual Giant Auction, our first ever Earth Day Event, and the end-of-year pig roast. We look forward to seeing newcomers take part in our live community of aquarium and pond enthusiasts!



The first issue of the year hasn't quite turned out as I had planned. My work and home schedule have been pretty hectic these past weeks, so I wasn't able to finish two of our regular columns: "Meet the OVASians" and "Getting to know... (one of our sponsors)". My apologies – I will make up for it in March!

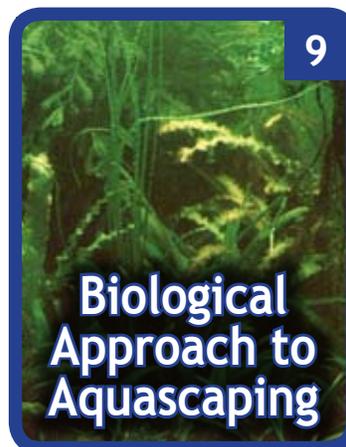
However, we have a great contribution from **Joe Schwartz**, our club's Vice President. He has provided us with a well documented and informative article entitled "Biological Approach to Aquascaping". The picture that graces the cover is of Joe's 180 gallon planted tank. Thanks again Joe for taking the time to share your thoughts and knowledge!

As well, for the first time this year, I am dipping into the waters of CAOAC associate club newsletters for articles of interest. I've selected to reprint an article that appeared in the December issue of "Fins & Tales", the Kitchener-Waterloo Aquarium Society (KWAS) newsletter. In "Emergency 911", **Zenin Skomorowski** describes his adventure in repairing at the Waterloo Inn. In my view, this article not only provides good information on repairing a tank, but also exemplifies the dedication of KWAS members and illustrates a novel way to promote the hobby in the community and to exchange valuable services with local businesses. Thanks Zenin for allowing me to share your story!

Enjoy our latest edition of OVAS Currents – I look forward to your comments, and your articles!

André Martin (ajm1961)
Newsletter Chair
newsletter@ovas.ca

IN THIS ISSUE...



OVAS CLUB NEWS

UPCOMING EVENTS

OVAS Club Meetings

Unless otherwise stated, all club meetings are held at 7:00 PM on the fourth Monday of the month at J.A Dulude Arena, 941 Clyde Avenue, Ottawa

January 23

Featured speaker: Aqua Inspiration from Toronto. They will be giving a demo of how to plant an "Amano tank" – a natural style aquascape for which Takashi Amano is known.

Website: <http://www.aquainspiration.com/>



February 27

Aquarium photography workshop with Ron "Rockgarden" Hay, OVAS member since 2005.

Details to come - watch for it on our forum!

Ron's website: <http://www.megapixeltravel.com/>



© Ron Hay / MegaPixel Travel

Sunday, March 4

OVAS 2012 GIANT AUCTION!

- The biggest aquatic auction of the year in Ottawa!
 - Plants, fish, and dry goods!
 - Hard to find items!
 - Good prices!
 - A whole lot of fun!
- Watch for details on the OVAS forum!



March 26

Featured speaker: Richard Inchley from Ponds and Aquaria. Come and meet our latest sponsor.

Originally from the UK, Richard studied fish farming, leading to a successful 25 year career in the water garden and landscape industry. Richard has also been a keen pond and aquarium hobbyist for over 35 years.



RICHARD INCHLEY
PONDS & AQUARIA

Box 192 Kinburn ON K0A 2H0
tel. 613 852 2188
fax. 613 832 1046
info@pondsaandaquaria.ca

Sunday, April 22
OVAS EARTH DAY EVENT



Check out the next page
for more details!



OVAS LIBRARY BOOK REVIEW

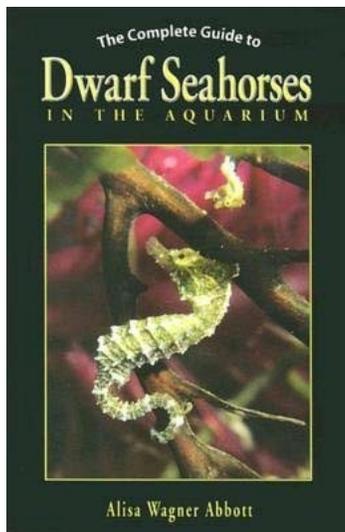
Aquarium Care of Bettas by David Boruchowitz

This little book gives an in-depth account of how to care for your Betta . You will find many colorful photos and an account of different types of Bettas. I found ideas and tips on the dos and don't of caring for your fish that other Betta books lack.

You will find detailed information on the best environment to house and to breed your Bettas. As well instructions are included about the care and feeding of the fry.

I would recommend this book for the novice and seasoned Betta owner.

The Complete Guide to Dwarf Seahorses in the Aquarium by Alisa Wagner Abbott

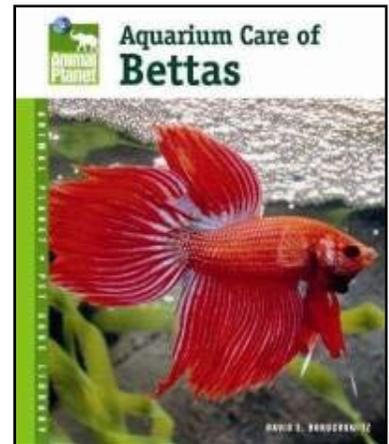


The author of this book works as a Seahorse Technical Assistant. In the book is compiled Alisa Wagner Abbott's wealth of knowledge for caring and feeding of captive-bred dwarf sea horses. For those, who are itching to own seahorses, you will find this book gives a thorough introduction into the art of caring and breeding of seahorses. The dwarf seahorse is considered the easiest species of sea horses to care for. Included in this book is an overall look at other species of seahorses.

OVAS Library books can be found at the General Meeting. Books can also be requested from the online list found on the left of the OVAS website page under Quick Links. The books requested will be brought to the general meeting or arrangements can be made to pick up a book at other times. There is a \$5 dollar deposit per book which will be refunded to you upon the book's return.

To request a book send a PM to "washefuzzy" or an email to "librarian@ovas.ca".

Joyce Landry (Washefuzzy)
OVAS Librarian
Email: librarian@ovas.ca
Link: [Library listings](#)





The OTTAWA VALLEY AQUARIUM SOCIETY
presents

EARTH DAY EVENT

SUNDAY, APRIL 22, 2012
2:00PM - Ben Franklin Place
101 Centreponte Drive - Chamber Room



Alanna Mitchell

Author of the critically
acclaimed book

Sea Sick:

The Hidden Crisis in the
Global Ocean

Ret Talbot

Award-winning writer
and photojournalist



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Or contact: program-director@ovas.ca

THE SPEAKERS

Alanna Mitchell - Keynote speaker

Alanna Mitchell is a Canadian author and journalist who writes about global science issues. She specializes in investigating changes to the earth's life-support systems and travels the world in search of scientists at the centre of what's going on.

Her first book, *Dancing at the Dead Sea: Tracking the World's Environmental Hotspots*, came out in 2004 in Canada and in 2005 in the rest of the English-speaking world, to international praise.

The World Conservation Union (IUCN) and the Reuters Foundation named Mitchell the best environmental journalist in the world in 2000 after an international competition. The prize was a fellowship at Oxford University, which Mitchell took up in the Hilary term of 2002, studying with the eminent ecologist Norman Myers.

Her second book, *Sea Sick: The Hidden Crisis in the Global Ocean*, has been published in the US and the UK and has become an international best seller. It was first published to great acclaim in Australia by Murdoch Books in September 2008. *Sea Sick* was published in Canada in March 2009 by McClelland & Stewart, with a paperback version available in March 2010.

Alanna has an essay in Tim Flannery's book *Now or Never*, published in Canada by Harper Collins. *Now or Never* discusses in detail three potential solutions to climate change, the most urgent of the challenges we face in our pursuit of sustainability.

Here is what Alanna will be talking to us about:

"The talk that I think would fit the best is an inspirational hour-long one about the health of the global ocean and how we're affecting it. I usually touch on ocean acidification, low-oxygen zones (dead zones) and the rise in temperature as the evil troika of ocean change. I tell stories of how I trailed around after marine scientists for two and half years to track their research on this stuff. Then I talk about the final tale of going to the bottom of the ocean in a submersible (3,000 feet) where I had an epiphany about hope."

Ret Talbot

Ret writes extensively for and about the marine aquarium industry, which he believes can and should play a leading role in tropical reef conservation. He is the co-author of *The Complete Idiot's Guide to the Saltwater Aquarium*, and he writes a regular column called "Ret Talbot Live! Marine Crossroads: Where Science, Ecology & Hobby Meet" for *Microcosm Aquarium Explorer*, a website showcasing the work an international team of leading aquarium authors, marine biologists, underwater photographers, and tropical naturalists. Ret is a regular contributor to *Tropical Fish Hobbyist*, and he is also the feature writer for *Marine Fish at Suite101.com*, where he has written well over 100 online articles about marine aquarium fish, tropical reef conservation, and marine science. He writes the *SaltwaterSense* blog at *Saltwaterfish.com* and, most recently, was invited to write a blog at *The Reef Tank* dealing with the hobby and the industry behind the hobby.

Here is what he will be talking to us about:

"It seems like my talk regarding sustainability and marine aquarium fisheries may be most appropriate. This is a story I have been researching for *CORAL Magazine* for the past two years, and my presentation is constantly changing as the story changes. The presentation in Michigan this weekend will be skewed toward Hawai'i, as that is where my last trip took me to research the passage of a resolution seeking to ban the trade statewide. My talk also covers emerging and established marine aquarium fisheries across the Pacific in places like Papua New Guinea, Solomon Islands, Fiji, etc. People generally enjoy the slides from my travels researching the trade, diving with local fisherman and understanding the socio-economic impacts of the marine aquarium hobby on developing island nations. Beyond the slides, I share the science and backstory so that people can begin to "think big picture" about the hobby and what we really mean when we say we are committed to sustainability. By the end of the talk, everyone in the audience should have some hands-on practical tools for how they can use their purchasing power to support a sustainable and robust marine aquarium trade."

Links

To learn more about the speakers, have a look at their internet site.

www.alannamitchell.com

alannamitchell



www.rettalbot.com



Advertising space available!

This event is HUGE and it comes with a big budget. In order to keep ticket prices at a minimum, we are selling advertising space on the event program and posters. Below are the three available ad sizes. Gold ads are \$400, Silver \$200, and Bronze \$100.

If you are interested in purchasing advertising space or know someone who is, please contact Sylvia.

Your help would be greatly appreciated!

Sylvia Robbins (Fishnut)
OVAS Program Director
Email: program-director@ovas.ca



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Biological approach to aquascaping

by Joe Schwartz

Watching two dog owners walking their dogs, one with a leash, choke chain collar and muzzle, the other walking freely at heel, ask yourself which owner understands how to work with the biology of their dog.

Technology is a poor substitute for understanding nature. Marine aquarists were taken in by the appeal of more technology in an attempt to make up for their lack of biological understanding of live rock's role in the marine ecosystem. Adoption of the Berlin style aquarium, and authors like John Tullock writing chapters titles "more biology less technology" resulted in better biologically balanced marine tanks whether F.O.W.L.R or invertebrate reefs.

Today freshwater aquarist are repeating a similar pattern and missing the same opportunity to work with and understand freshwater ecosystems.

One key mistake is being in too much of a hurry. Nature at a minimum works on a yearly cycle or even a cycle of years – that should be obvious.

When one tries to grow organisms either too fast or too large, the end result is poor. Anyone who has had a large dog get hip dysplasia, raised white rock chickens till they became crippled, grown a horse too fast till it developed O.C.D. and had to be destroyed, over watered tomato plants till they fell over, even young men growing too tall, too fast are more prone to a collapsed lung. These examples illustrate the folly of maximizing rather than optimizing growth patterns.

Nature always provides periods of consolidation due to the seasonality of ecosystems. We want our aquaria to run at "full steam" for 365 days a year – that makes no sense at all!

Why are light timers set for maximum intensity and photoperiod year round? Heaters are set at a constant mid-day high temperature forcing fish (corydoras), invertebrates

(cherry shrimp) and plants (aponogeton) to live at abnormal temperatures. An organism's enzyme activity curve for a temperature is determined by the last 100,000 years of evolutionary history, including several ice ages, not the water temperature at the retail store. As paleoclimatologist Dr. Curt Stager says: "our present climate conditions are not normal" (www.curtstager.com). Meaning this 10,000 year interglacial period is abnormally warm for Planet Earth.

Jody McManus points out (OVAS Currents Nov-Dec 2011) that "he feeds his cichlids every two days to prevent growth deformities and improve overall health". He says wild fish are smaller than tank raised specimens due to less fat and protein in their diet. Fish will grow throughout their entire life, it's why biologists can use scale patterns to determine a fish's age.

Bob Fenner writes in his article Going Nano (TFH dec 2011) that he feeds his healthy Maroon Clown Fish **four times per year!**

Overfeeding is too much, too often and too rich in fat and protein (try detritus). It's just part of our general pattern of overdoing everything!

Every aquarium is overstocked. You don't see 1 or 2 fish per gallon of water in natural bodies of water. You see a few minnows in 100,000 gallons of water. We have to cure our need to cram everything we want into the same aquarium.

We are smart enough not to place marine and freshwater together, but how often have we seen goldfish and tropical together, fish with very different pH and kH values together, big fish kept with much smaller fish. None of these ecologies are natural.

So how can we recreate beautiful aquascaped aquariums which reflect the natural beauty of aquatic environments? Slowly and with biological understanding of nature's creatures. "slowly" means selecting slow growing plants

– a “no brainer”, eh? What that really means is they must have the ability to sustain themselves with less light, heat, and nutrient during consolidation without disappearing to survive as a seed, tuber or rhizome. If they do, they were not pushed to exhaustion during their growth phase. Example species: *Microsorium*., *Vesicularia*, *Bolbitis*, *Cryptocoryne*, *Aponogeton*, and *Anubias*.

The trend to add CO₂ to aquascaped tanks stems from the availability of emerged stem plants, which are neither true aquatics, like *Cabomba* sp., nor amphibious like *Cryptocoryne* sp. To test a stem plant just grow it close to the surface. If it pops out and grows rapidly as it would in nature with receding water leaves (dry season) to be able to flower and seed, then you have your answer.

Plants with emergent stems have similar leaf structure (i.e. stomata) to land plants. They rely on the 0.04% CO₂ in air verses water which ranges from 10 to 40 mg CO₂ per litre for desirable plant growth. Note 0.04% = 400 ppm (parts per million) not equal to 400 mg CO₂/L.

Professor Ole Penderson (University of Copenhagen) and Claus Christensen (Tropica’s R&D Manager) reported in their article CO@ light and growth of aquatic plants reprinted in planted aquaria Spring 2001 plant growth of 1.1% with 0.7mg CO₂/L at 1400 Lux and 4.1% at 35.2mg CO₂/L. At light levels of 15,200 Lux, growth was 6.5 and 14.8 respectively.

Hence plants grow at any CO₂ level with adequate light, but not in a linear fashion. It took CO₂ increases of 500% to increase growth by 10 to 40% depending on light level. Air has from 10 to 40 times as much CO₂ as water. Emerged plants grow slowly under water as they lack the required cellular adaptations – that is until they reach the air.

Plants have two methods of CO₂ intake:

1. Free absorption of CO₂ via stomata as free gas into cells involved in the Calvin-Benson cycle.
2. Active transport involving ATP which pumps CO₂ into cells with a ribulose Bi Phosphate (RuBP) Carboxylase enzyme.

But I’m getting ahead of myself here. Photosynthesis is made of two different but interconnected reactions:

1. The **light reaction** which produces ATP (Adenosine triphosphate) and NADH (Nicotinamide adenine dinucleotide phosphate). Recall your high-school biology – both these compounds are “high energy molecules” which energize the...
2. **Dark reaction** which fixes CO₂ into the Calvin-Benson cycle to produce sugars, the building blocks of starch, cellulose and lignin, the structure materials of plants.

Refer to Diagram 1 for an overview.

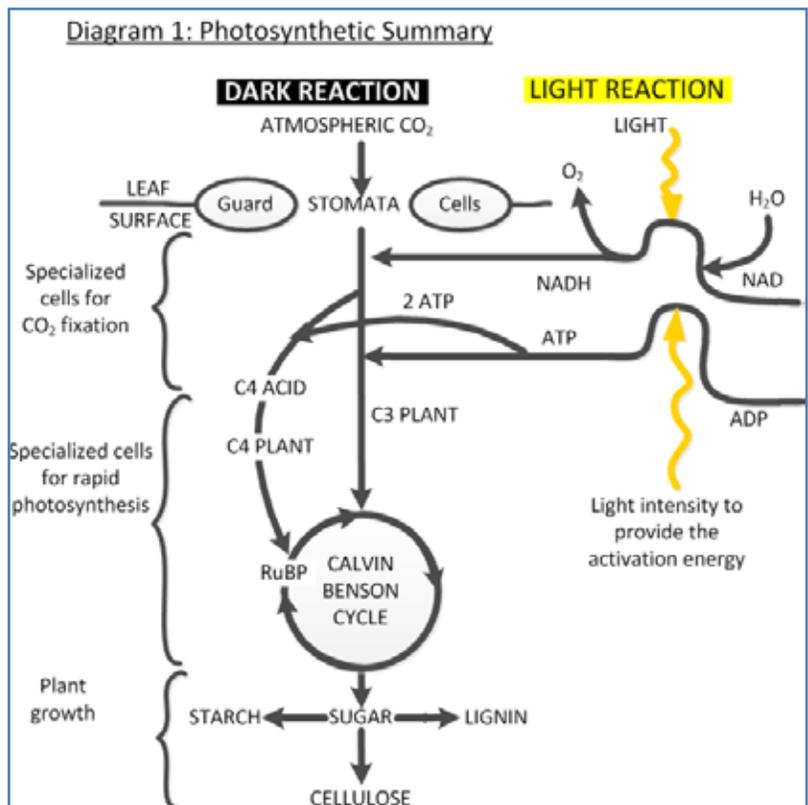
Increased light intensity will increase photosynthesis until excess ATP/NAHD is synthesized for the dark reaction, which is limited by CO₂ availability.

The first method of CO₂ absorption as free gaseous CO₂ is Errol’s “fine mist technique” which simulates atmospheric CO₂ for his emerged plant stems, i.e. *Alternanthera Reineckii* (OVAS Currents Nov-Dec 2011).

The second active “pump system”, particularly used by C₄ plants, use a modified RuBP carboxylase enzyme, which is the most common protein in nature comprising up to 50% of leaf protein. Although RuBP is abundant it is also very inefficient. The details of this are likely beyond your interest, so I’ll omit them except to say this inefficiency can manifest itself during draught. Not a problem for true aquatic plants except the amphibious and emergent plants, as well as the Kentucky Blue Grass in your lawn which are C₃ plants.

C₄ plants are more efficient during dry periods as they have developed a combined structural and biochemical modification that has RuBP carboxylase continuously supplied with high concentrations of CO₂, to promote CO₂ fixation, even when the stomata are partially closed to help reduce water loss. Transpiration costs a plant most of its water, relatively little water is used biochemically, which is why you need to maintain high humidity when utilizing the “dry start” method to start your aquascape.

C₄ plants acquired this label as CO₂ is fixed into a four-carbon acid molecule. Do slow growing amphibious plants, such as *Cryptocoryne*, have an ability to switch from C₃ to C₄? I don’t know, but it might explain why the “dry season”





is not a problem for them, whereas C3 plants can only do well during cool/wet conditions. Plants that benefit from 30+mg CO₂/L are C3 plants without the high efficiency modifications.

Microbiologist Dianh Walstead set up some trials of planted tanks to measure CO₂ levels (Aquatic Gardener, Jan. 2010). Her data shows a well planted tank will drop the CO₂ levels from 10+ mg/L to 2 or 3 ppm in 4 to 5 hours slowing plant growth from 10% to 3% based on Ole Penderson's data. However CO₂ levels returned to 10+ mg/L if the lights were turned off for 4 to 5 hours. She set her timer to turn lights on for 4-5 hours in the morning, then off for 5 hours, back on for 4-5 hours, and then off for the night. This setting resulted in elevated levels of CO₂ twice a day for 8 to 10 hours, thus promoting plant growth in the 4 to 10% range depending on light levels.

Many tropical areas receive afternoon rain storms on a daily basis during the wet season with diminished light intensity.

Note that Walstead's tanks were not in total darkness – the lights were simply turned off during the day. Low light levels fail to provide the activation energy to synthesize ATP and NADH. Intensity is more important than photoperiod which is why extending the photoperiod of a low intensity lighting system fails to grow plants well.

Plants require other nutrients than CO₂, which can be provided by some combination of fertilizer pellets, natural soil and liquid fertilizers. My experience has been that certain plants –Cryptocoryne pontederiifolia, Aponogeton crispus, A. undulatus, and Nymphaea species – respond well to real soil. However all that is needed is a handful of soil under those plants. Natural soil also prevents "Crypt Rot" in newly set up tanks. Covering the entire bottom will just lead to a mess with tea coloured water, as humic acid is released. Soil placed over an undergravel filter plate will migrate to fill the space within the plate. Too much soil will have you stripping down your tank in two years. Other plants like A. rigidifolius prefer fluorite or quartz gravel.



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Water current is key to the dispersal of all soluble nutrients, whether ionic (potassium sulphate) or molecular (CO₂).

To design a beautiful aquascape, start by locating two focal points one third of the way in from the ends of the tank and offset on the diagonals to create a sense of depth (diagram 2). This allows positioning water returns and powerheads to be hidden by hardscaping and maximize the turbulence. Recall your vector math/physics; forces that intersect at 90° experience no loss of kinetic energy thus increasing dispersal of photosynthetic nutrients as well as producing a pleasing random motion of leaves. Eleven of the twelve top aquaria in the 2011 ADA International Aquatic Plant Contest used this basic design (TFH, Jan 2012).

Plants should be planted in groups to replicate microclimate selection. With only a few specimens, use odd numbers (3 or 5) set out in a triangle or star pattern. Avoid “perfect” bilateral symmetry as nature seldom achieves such balance.

Selection of fish is key, as you want hardy, colourful, and active fish that match “average” plant water chemistry: pH 6.5 to 7.3, kH 3° to 10°, gH > kH, temperature 70 to 80° F. The fish should occupy all the “niches”: surface (hatchet fish), pelagic (rasboras), lower (barbs), and bottom (corydoras). Remember to leave pathways for “corys”.

All adult fish should be about the same size. Decide initially if you want 1.5”, 3”, or 5” fish. Most importantly, your fish must respect your plants as much as you do! Angels are anything but respectful when preparing an egg laying site by shredding an *A. ulvaceus* leaf you waited months to see

as the plant comes out of dormancy!

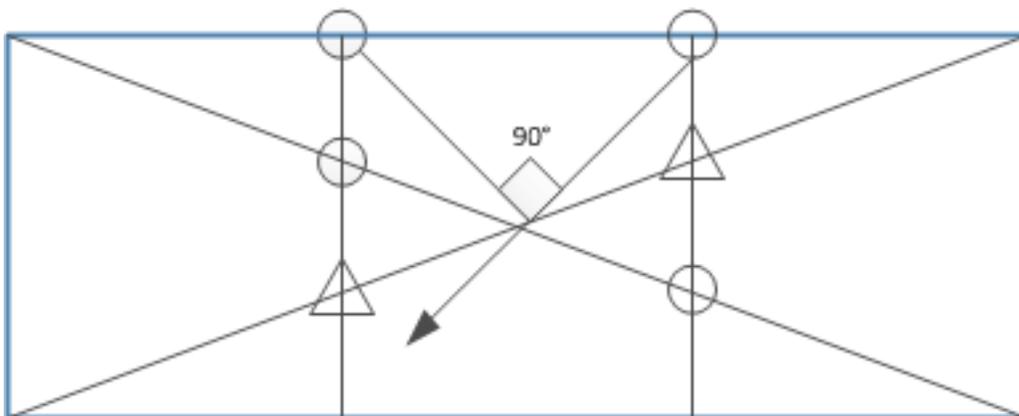
So get to know the behaviour of both fish and plants. Add your fish specimens as you build up your plant population. Consider using the “dry start method” for your amphibious plants (Freshwater and Marine Aquarium, Dec. 2009) to minimize the work and algae problems. If you introduce a specimen that does not “harmonize”, admit you made a mistake and “yank” it out for the OVAS auction.

For me the purpose of aquascaping is to bring together beautiful and interesting specimens to create something that is more than the sum of its parts and do it in as natural a way without breaking the bank, or turning it into an exercise in engineering. Thus producing a living piece of art which is also an ongoing biological experiment allowing me to continue learning from nature.

Feel free to ask questions at any OVAS meeting. Always remember, never start with the end goal! Just keep your eye on it from the start. It’s okay to take several years to develop your aquascape – nature does. This way, you stay in the hobby longer and that is a good thing. The creative and fulfilling aspect of aquascaping comes from time spent developing the design. Thus, the longer it takes, the more you can savour this aspect of the hobby.

As Gandalf tells Frodo: “Life is not about what you have, it’s about what you do with the time we are given.”

So, enjoy the time you spend on aquascaping!



Select one pair of focal points ○ or Δ for hardscaping rock or driftwood.

Leave sides/central area relatively open to facilitate:

1. Observation of pelagic fish
2. Room to net fish
3. Ability to move gravel siphon
4. Open volume for water currents



Joe Schwartz
Vice-President

P.S. Special thanks to the aquarists who have brought plants to past OVAS auctions. Of all the plants in my aquascaped aquarium, only two were not acquired through OVAS. The fish were purchased from Big Al's in Kanata.

Joe's Aquascape Summary

Tank Setup Date	December 2008
Tank Size	72" x 24" x 24" – rated 180 gallons; actual gallons 155
Light	T5 HO: 2 x 10,000K, 2 x 6,700K One bulb changed every 3 months
Photoperiod	Winter: 6 - 8 hours Summer: 15 - 18 hours, includes 4 hours off
Temperature	Winter: 70 - 76°F Summer: 75 - 80°F
pH	Winter: 6.6 - 6.8 Summer: 6.8 - 7.2 buffer adjusted
kH	2 - 4° gH > kH
Filters	1. Eheim Pro II – runs 24/7 2. Internal canister, daylight turbulence only 3. U.G. filter 3 sq.ft. under driftwood Eheim powerhead used as backup 4. Air pump / Hydrosponge – night only
Heater	300w used mid-Nov. to mid-March as tank is insulated with 1.5" polystyrene
Substrate	<50% fluorite, <50% gravel, some soil
Fertilizer	Flourish + Flourish Iron at 1/3 dose
Driftwood	Mopani + Native (Algonquin Park)



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Livestock – as of Dec. 2011

* = bred/reproduced in situ N = Numerous

- 6 Octocinclus * eggs/fry
- 6 Black Phantom Tetras
- 6 Rummy Nose Tetras *eggs
- 8 Gold Line Pencil Fish *eggs
- 8 Pygmy Corydoras
- 6 Bloodfin Tetras
- N Cherry Shrimp *
- N Assassin Snails *
- N Malaysian Snails *
- N Microsorium (3 varieties) *Spores/Adventitious
- 3 Nyphaea micrantha *Adventitious
- 1 Nyphaea sp. *Tuber division
- N Vesicularia sp. *Spores
- N Echinodorus tenellus *Runner
- 3 E. bolivianus sp. *Crown division
- N Marsilia hirsuta *Runner
- 3 Crinium calamistratum
- N Cryptocoryne willisii *Rhizome
- N Cryptocoryne wendtii *Rhizome
- 6 Cryptocoryne ponderiifolia *Rhizome
- 9 Cryptocoryne balansae *Rhizome
- 3 Aponogeton crispus *Flower/seedling
- 1 Aponogeton undulatus *Adventitious
- 1 Aponogeton ulvaceus *Flower
- 2 Anubias barteri barteri *Shoots a rhizome
- 2 Anubias barteri nana *Shoots a rhizome
- 3 Bolbitis heudelotii *Rhizome



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911 EMERGENCY

KWAS Members to the rescue!

Reprinted by permission from the Kitchener-Waterloo Aquarium Society
Article originally published in the Dec. 2011 issue of Fins & Tales
by Zenin Skomorowski

The Waterloo Inn is a full service, 155 room hotel and conference centre on King Street North in Waterloo Ontario. They host meetings and events for groups up to 600 people. Their main entrance lobby features a 6 foot long 125 gallon African cichlid aquarium for visitors to enjoy. The staff also like to look at the fish. A team from the Kitchener-Waterloo Aquarium Society maintains this aquarium in exchange for use of the large ballroom for our annual Oktoberfish Show and Auction.

During a maintenance visit, I noticed a problem with the aquarium. The centre brace was pulling away from the top frame. The total gap looked to be about one centimetre (about 3/8 of an inch). The front glass at the top was bowed out a bit. I had done some maintenance on the tank just a month earlier and the frame was intact at that time. I knew something had to be done very soon, or there could be a lot of water rushing across the marble floor of the lobby.



I posted on our forum looking for suggestions on what course of action to take and how to proceed. Some suggested using a chemical cement glue to attach piece of acrylic to either the top brace and frame, or to the front and back glass to prevent any further bowing out of the glass. Others suggested replacing the aquarium with a new one.

I did some more research into this situation and found some good discussion and suggestions at the following sites:

- www.wetwebmedia.com/glstkbraces.htm
- www.aquariumadvice.com/forums/f60/replacing-aquarium-top-frame-66008.html

The following options were presented to the Waterloo Inn:

1. Shutdown the aquarium and not replace it
2. Glue a piece of acrylic to stop the glass from bowing out any more
3. Replace the top frame with a new one
4. Replace the aquarium and set up another display

I felt that option 1 was the least desirable. It would take an aquarium out of public view, and lessen the profile of the hobby in the minds of the general public. KWAS would then have a considerable expense to rent a venue for our annual show and auction, that was previously covered by volunteer hours.

Option 2 had many uncertainties regarding the glue to be used and whether gluing to the top brace would hold better or longer than gluing to the glass or gluing to both underneath the top brace. There may be other regular maintenance issues with this piece attracting water, algae and calcium deposits.

I was unsure with Option 3 if there was a replacement top frame readily available, and what work would be required to remove the old one. Option 4 would have resulted in a nice new aquarium, but there would have been a lot of work to tear down the old one, temporarily house the fish elsewhere, and set up a new aquarium. This last option would also be the most expensive for the Waterloo Inn.

After a flurry of postings and emails from the forum and KWAS club members regarding legal liability considerations, I had the management of the Waterloo Inn accept and sign a document acknowledging their legal and financial responsibilities for whatever option was chosen.

They wanted first to try to keep the current aquarium by doing a repair, so I suggested that if I could find a replacement top frame, it would be the cleanest looking solution.

So I began my quest for a top frame by calling Miracles Aquariums, a local manufacturer of aquariums. Turns out that they don't usually sell aquariums or even pieces like the top frame directly to the public. They suggested that my local Big Al's Aquarium Services in Kitchener would have one on hand. So I called them and yes, they did have one the right size in stock. It was the same as the current frame with one brace in the middle rather than the more recent frames with two braces requiring 3 sections of glass for the top. I could reuse the two glass lids that we already had.

After asking for a volunteer, KWA member Terry Clements quickly responded that he could help me the following Saturday or Sunday morning. I gathered up the tools I thought we might need and then met at the Waterloo Inn to do the job.



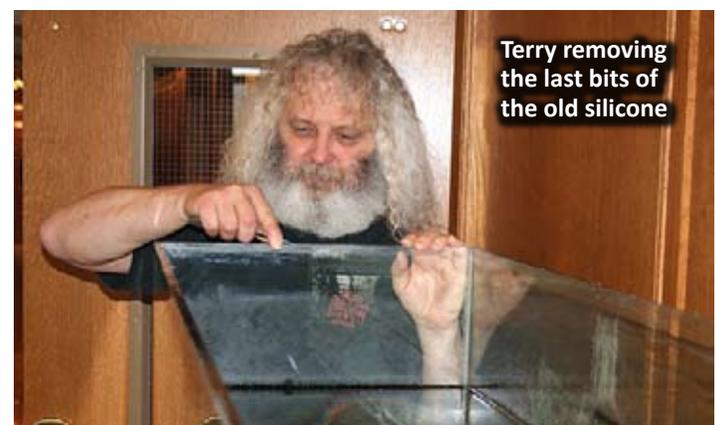
Earlier in the week I had lowered the water level by at least 20 cm (8 inches) to reduce the pressure on the top glass.



Immediately, I could see that the gap between the top brace and the frame had closed up, meaning the glass had returned to its usual position. I have noticed this bowing out and return to flat when doing water changes on my 30 gallon aquarium that does not have a top brace. My 100 gallon aquarium does not have a top brace either, but the glass is much thicker, even thicker than the glass of the Waterloo Inn aquarium, so it does not bow out at all.

A couple of days after lowering the water in the Waterloo Inn Aquarium, I had put on two "F" clamps and hardwood strips to hold the tops of the glass to prevent any bowing, just in case. I thought this would help in getting the new frame on after taking off the old one.

Terry and I used a hacksaw blade and some paint scraper tools to remove the top frame. We continued to use the scraper tools to remove as much of the remaining silicone glue that was holding the old frame.



Next, isopropyl alcohol and paper towels were used to really clean the top area of the glass where the new silicone would hold on to the new frame. Once everything was clean, I ran a bead of silicone along the top of the glass and inside of the frame. We then placed the new frame on top of the aquarium, it went on like a glove. We carefully pushed the frame down as evenly as possible, checking for any silicone oozing out from under the frame. Everything looked good.

After cleaning up for a few minutes, the glass lids were placed back on, but the light that sits on the frame was not put back on. The water level was left lowered for a few days until the silicone was firmly set.



I returned a few days later to top up the water and install a new mylar backing sheet. The old one was brittle and was damaged trying to get it off before the frame removal. The front desk of the Waterloo Inn is near the aquarium and the staff were showing interest, so I let them choose which side of the backing to use, either the planted biotope, or the rock piles. They chose the rock piles, which was very appropriate since most of the fish in that aquarium are Rift Lake Africans. I then put the lights back on the top of the aquarium and turned them on. The aquarium looked great!

After some consideration of the situation and possible outcomes, it turned out not to be a 911 emergency, but it could have been ...



**The finished product: new frame, and a new mylar backing sheet.
Lookin' good!**



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If you refer someone to the club and they become a club member*, you receive a \$5.00 gift certificate from the sponsor of your choice!



*Applies to new memberships only, not renewals.

Share your passion!

Participants needed for "show and tell" at upcoming meetings. Presentations to last 5 minutes.



Contact Sylvia (Fishnut) for more information or to participate.

email: program-director@ovas.ca

Show us your colours!

TIME IS RUNNING OUT!

To send us your entries:

- Scan and email to newsletter@ovas.ca
- Bring them in person at one of our meetings

Rules:

- open to children (1-12 yrs) related to OVAS members; one entry per child
- state child's name, age, and relationship to you; drawing title or description; your name on the back
- format no larger than 8.5 x 11; drawing must be of an aquarium or aquatic environment
- one draw per issue: **next draw deadline March 15, don't miss out!**



Look for the entry form in the Nov-Dec issue or simply submit on any sheet of paper

That's it for this issue folks!
See you in March!



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