



The Raleigh Aquarium Society

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February 7th, 2008

Next Meeting: Thursday @7:30pm March 6th, 2008.

Meetings are held on the first Thursday of each month at the [North Carolina State University College of Veterinary Medicine](#) located at [4700 Hillsborough Street in Raleigh](#). Visitors are welcome! Snacks and light refreshments are provided. A raffle of fish and fish related items follow the meeting. Due to Security Issues, NCSU has required that the doors going into the downstairs lobby remain locked. Please be on time, as we will have a designated person standing by the door to let you in. If you are late, you may try knocking or call Linda Twaddle at 919-880-3782 or John Patterson at 919-264-4011.

Meeting Agenda

Conquering Marine Nuisance Algae by Tom Wyatt

This month's speaker comes to us from Spartanburg, SC. Tom Wyatt has presented talks at MACNA and other high-powered venues and we're fortunate to have him in Raleigh for this month's meeting. He'll be talking on strategies to get the best of nuisance algae. The topic is mainly marine in nature but has a great deal of carry-over to freshwater systems. So, whether you're from the freshwater side of the house or the saltwater side, there'll be something for everyone.

Todd

Monthly Feature

ARTICLE INFORMATION:

Author: Claus Christensen

Title: The Open Aquarium

Summary: An aquarium without a cover glass will allow emergent plants to thrive, and other plants are best viewed from above. Questions concerning room humidity, lighting, suitable plants, and jumping fish are discussed.

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The Open Aquarium

by Claus Christensen

Claus is Managing Director of *Tropica Aquatic Plants*, of Denmark
Aquarticles

The open aquarium, without the top glass and with the lamps hanging from above, provides a new dimension of the traditional aquarium and it allows plants to produce an emergent inflorescence. Does it cause humidity problems in our homes? Will the leaves of emergent plants dry out? What will happen to the fish?

The open aquarium is my favourite aquarium! It provides new dimensions for the aquarium and the living room. We can observe the leaves of floating plants, flowering aquarium plants such as *Nymphaea* (water lilies), and a lot of other aquarium plants that are amphibious and grow out of the water providing great ornamental effects. In addition, opening the aquarium offers more possibilities for exciting illumination.



But this beautiful aquarium may affect the indoor climate much more than a traditional aquarium:

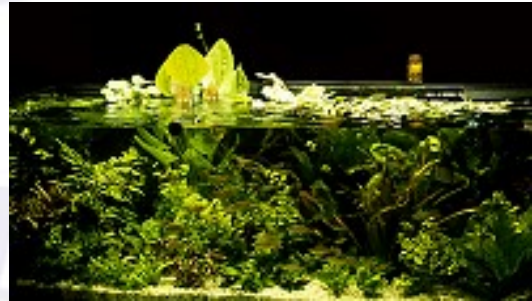
Relative air humidity

A frightening example was an aquarist with an open aquarium of 800 litres in a room of 16 m². He had discus in the aquarium and the water temperature was 28°C (82°F). Problems cropped up because of the large aquarium and the huge evaporation caused by the relatively great difference in temperature between the room and the aquarium. The wallpaper became mouldy and the windows were constantly misty.

But usually open aquaria do not cause problems with damp if the following are observed:

- The surface of the aquarium should not exceed 2% of the room area. Thus, in a room of 40m² the aquarium should not exceed 500 litres.
 - The difference in temperature between water and air should not exceed 5°C (9°F), to keep evaporation at a minimum. We have seen problems in unheated rooms during the winter because evaporation increases tremendously with the difference in temperatures.
 - Make sure that the room is frequently aired - this is advisable anyway and it ensures a healthy indoor climate.
 - Finally, floating plants or plants with floating leaves will help to lessen evaporation because they create a boundary layer of relatively stagnant air!
- If these precautions are taken, the relative humidity will increase only by about 5%.

I have asked scientists working with health and air humidity, and recent research has shown that people cannot feel variations of 30-70% in relative humidity. When the air is recognized as dry or moist within this range, it is caused by other factors such as high temperature, dust, or gases released from materials in the room, e.g. building materials, carpets, paint, etc. Thus, people usually do not feel the increase in relative humidity that an open aquarium causes. For example, one person emits 2.5 to 3 litres of water per day (breathing, sweat, showering, cooking), so if an open aquarium of 800 to 1000 litres evaporates some 15 to 20 litres per week, it simply amounts to an extra person living in the home.



Some allergists are very sensitive to microorganisms and the substances they may emit. But recent research has shown that growth of microorganisms is independent of the actual relative humidity. Microorganisms rely on the microclimate, which is created by the fabrics on which they live and not the actual relative humidity as such. Aquaria in general - traditional as well as open - have been examined in relation to allergy, and a few cases have shown some negative effects, but not due to increased relative humidity. They have all been caused indirectly by problems created by leaky tanks, which caused for example growth of moulds in the carpet. In really rare cases people have developed allergy to red midges (chironomids), an allergy caused by the red protein haemoglobin.

From the research on indoor climate it may be safe to conclude that the effect of open aquaria may be purely positive - a relaxing effect, psychological in nature.



Illumination

Different types of lamps can be used for the open aquarium. A few lamps on the market spread too much light out into the room and not down into the aquarium where it is needed for plant growth. This may dazzle people in an otherwise dark room, and it may cause a cool gleam in the room. Such problems are often caused by hanging the lamps too high, but may also be caused by a reflector that is inefficient in concentrating the beam. The lamps must be lowered to a point where all the beams are falling onto the water surface.

In Germany they produce metal halide lamps designed so that only very little light escapes the open aquarium. Small

low-voltage halide spotlights (very popular at the moment) can provide fantastically beautiful illumination on individual plants. These are particularly ideal for slant illumination from the front screen inwards, and often give new glowing colours to both fish and plants because of new reflections. However, these lamps are usually insufficient as growth lights for aquaria larger than 100 litres.

Amphibious plants

The leaves of plants growing out of the water may tend to dry out if the relative humidity of the air is too low, or the lamps are placed too close to the water surface. New shoots may be sprayed with water a couple of times each day, after which they usually do fine without any problems. Some plants, however, never adapt to the dry indoor air.

Many plants sold for aquaria - about 50% - are especially well suited for open aquaria. I will just mention a few of my favourites: *Echinodorus grandiflorus*, *E. cordifolius* and *Echinodorus* 'Tropica Marble Queen'. The 'Tropica Marble Queen' develops a heavily marbling above water and is very resistant to drying. All species of *Hygrophila* and floating plants will show in all their glory only in the open aquarium. Even obligatory submerged plants, such as *Vallisneria*, are better viewed from above.

The fish

Some fish may simply jump out of the aquarium. This is partly avoided by using a lot of floating plants. They provide a great ornamental effect but they may also make some fish feel more secure. However, some fish are very liable to jump out no matter what you do, and they should of course be avoided. Tip: glue on a horizontal border of glass (5 cm wide) all around, and this may prevent even the most jumping of fish from landing on the floor.

Therefore, my answer is "you may safely build yourself an open aquarium!"



Monthly Web Links

Raleigh Aquarium Society Forum on Yahoo Groups
<http://groups.yahoo.com/group/raleighaquariumsociety/>

Potomac Valley Aquarium Society in the Washington D.C. area <http://www.pvas.com/>

Atlanta Area Aquarium Association in Atlanta, Georgia <http://www.atlantaaquarium.com/>

Carolina Fish Talk <http://www.carolinafishtalk.com/>

Charlotte Area Aquarists Society <http://pvelasco.net/CAASBBS/index.php>

Marine Aquarium Society of the Carolinas <http://masotc.net/>

North Carolina Koi & Watergarden Society <http://www.nckws.com/>

Carolina Aquatic Plant Enthusiasts <http://www.ncaquaticplants.org/>

Aquatic Gardeners Association <http://www.aquatic-gardeners.org/>

KingFish Services <http://www.kingfishservices.net/>



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You may be asked to show your RAS membership card*

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[Critter Country Inc](#) 14 Technology Drive, Garner (10%) **919.772.3761**

[Down Under, Salt Water Fish & Corals](#) Highway 70 (in between Agri Supply and White Oak Shopping Center) in Garner. 20% on livestock, 15% on dry goods) **919.662.8820**

[Fins, Furs & Feathers Pet Center](#) 303 S. Horner Boulevard, Sanford, NC 27330 (10% on everything except tanks) **919.718.0850**

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[Fish World](#) 2205 Westinghouse Blvd., Suite 109, Suite 109, Raleigh (10%) **919.872.1228**

[Pet Mania](#) 7901 Falls of Neuse Rd #125, Raleigh (10%) **919.676.3225**

[Pet Paradise](#) 9101-141 Leesville Road, Raleigh (10%) **919.848.8881**

[The Pet Pad](#) 1347 Kildaire Farm Road, Cary, (10%) **919.481.6614**

[Triangle Tropical Fish](#) 3600 N. Duke St. Suite #36 Durham (10% excluding aquariums and stands) **919.479.0088**

Please contact John Jankowski at raleighaquariumsociety@yahoo.com if you are an active member of the Raleigh Aquarium Society and do not have an up to date membership card. Membership cards can be picked up at any meeting.



Raleigh Aquarium Society

Application for Membership

Membership privileges include:

- Ability to post items in trading post section of monthly newsletter
- A discount card good at participating local pet stores
- All club discounts on club functions
- Education from the most knowledgeable aquarium experts in NC
- Yearly Membership - \$15.00 (includes spouse and children)

(Membership dues run from March 1st each year. New members joining any other time will be pro-rated at \$3 + \$1 for each month remaining in the year.)

Name(s): _____

Date to begin membership: ____/____/____

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New Membership

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