

Fish 'N' Chips

A Monthly Marine Newsletter
April / May 2003 Issue

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From Liz

By Elizabeth M. Lukan 7/6/03

I will not be updating the website for this issue. The only exception will be the Tank Showcases. I haven't had much time lately and if you don't believe me, here's a tidbit that might convince you: I started this issue in mid-May and it should really be called the July issue by now.

Visit This Month's Subscriber's Tank Showcase: Richard Clayton's 60 UK Gallon Reef Tank is the May 2003 showcase and John Fletcher's 54 Gallon Reef Tank is the April 2003 showcase. Both showcases can be seen at <http://www.marinefiends.com/showcases.html> (*updated 8/24/04*).

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So, you want to start a Marine tank...

by Hennie Landman

By Elizabeth M. Lukan 6/1/03

A word of warning: starting a marine tank can cause a serious change in human behavioral

patterns - looking dreamy eyed at your tank for hours on end; phoning your loved ones (or anyone!) in the middle of the night to tell them about a new polyp, worm, glowing thingy about 1mm long, ... which you have just discovered; not buying new clothes, furniture etc. because your tank REALLY needs that new light, filter, ROCK, etc.... Oh well, maybe you won't get hooked so badly.

Firstly, get some advice.

- Most people's main source of advice is the Local Fish Store (LFS). Petshops, LFS's, call them what you like, these shops all exist primarily to make money. If they do, they are successful, and the owners can live in comfort (or even grow rich ??). If they don't make money, they go bankrupt. They will always try to sell you the most expensive (often quite useless) items, preferably something which you will have to upgrade later (another sale for them...). And these are the good ones - the bad shops will also sell you incompatible livestock, or diseased fish, or even fish caught with poisons, knowing that they will die after a few days. They can then blame it on you (bad water quality, wrong filter... *"you also need this UV sterilizer to reduce disease..."* and because you are not sure yourself, you inevitably buy more equipment (usually also useless). Get the picture..?? So BUYER BEWARE!
- People on Internet discussion groups do not have any financial gain by what they recommend, and are usually impartial, but there is another problem lurking - Pride. *"I use skimmer xxx, or pump zzz, this is the best, use it!" "Oh, I've kept 10 types of Angels, and 4 types of Damsels in a 50 gallon tank for the past 5 years, It's EASY - you can do it too..."* or even worse, *"Oh, I am very successful with keeping anemones. They are easy to keep, I've had 5 in the last year..."*
- Advice in books is usually outdated. Details on the animals and plants tend to stay relevant, but "technical" issues such as filters, skimming, lighting, etc. tend to change rapidly, as new equipment and techniques are developed. So, before you decide on anything technical, query what the books say!

Whilst gathering your information, you must THINK. Is it logical, does it agree with what other books say, or with the views of "experts"? You must also get as many recommendations as you can, and then try to decide what is right FOR YOUR PARTICULAR SITUATION. Even some of the most notable "experts" on the net, some even with PhD's, can't agree on "what is right" all the time. They do tend to agree on the basics, though, so if you get some "way off" advice, you should be wary.

Deciding on the TYPE of set-up

Before purchasing ANY equipment, you should decide on what type of environment (or set-up) you want. Some may argue that a fish only tank is easier to keep, as fishes can withstand a greater degree of pollution and water quality fluctuations. A "reef" tank though slightly more difficult, is much more interesting, and gives one a greater sense of achievement and satisfaction. Many people start off with a FO (fish only), only to upgrade to a reef tank later. This invariably results in some equipment having to be replaced, because they did not buy "Reef quality" originally. I would like to suggest that you buy your equipment with a reef tank in mind, even though you may initially plan to keep only fish.

Is "fish only" easier to keep than "Reef"?

The general statement that "a Fish Only system is easier to keep" (or that "inverts are a lot harder to keep") is very misleading, and totally unfair to novice marine aquarists. Let me explain:

Keeping "easy" inverts, such as some species of soft corals, cleaner shrimps, Featherduster worms, etc. are actually easier than keeping fish. They cause much less pollution, and therefore place less of a bio load on the system, which makes filtration a lot less critical. They don't get diseases such as "Ich", and many do not need much feeding either. You do need a minimum amount of light in order to keep corals and other photosynthetic animals. Fortunately the easier "low light" softies, such as brown or green Star Polyps (*Pachyclavularia* and *Briareum* spp.), Mushroom corals (*Sarcophyton* sp.) and Devils Hand or Finger Leather corals can be kept under normal fluorescent lights - though you would need quite a few tubes...

The "difficult" part of keeping a reef tank is when you also want lots of fish in it. This just does not work very well, and is not to be recommended to newbies. Rather start off with a "marginal reef" tank, with lots of live rock, a deep live sand bed substrate (both very important elements of your filtration, as well as being interesting in their own right), some "easy" soft corals, some tube worms, etc. and only a few reef compatible fish.

Do your research first, though. Learn as much as you can about the different filtration methods, compatibility of livestock, food and feeding, and everything else you can pick up... Then, carefully plan your set-up, and GO SLOWLY. In this hobby there is a saying:

IN A REEF AQUARIUM, ONLY BAD THINGS HAPPEN QUICKLY.

If you stock your aquarium before it has cycled properly, you will probably kill your animals. If you stock too rapidly, your tank will have another ammonia/nitrite spike, again probably

killing your animals. At best, you will have problem algae, and sick fish. Remember that this is a long-term hobby. It is not uncommon for a tank to only stabilize properly after 6 months. Your corals can outlive you, and even the most common fish can live longer than 20 years, if you do your bit....

Essential Equipment

Equipment does not **have** to be very expensive, but it **usually** ends up costing a great deal more than you originally had in mind.

Tank size and Shape:

Although one could successfully keep very small marine tanks, this is a specialized field, and is not the ideal for a beginner.

- Deeper tanks look more natural. They do require more intense lighting, though. They should also only have the same bio-load as a regular depth tank of the same surface area.
- A larger tank will be more stable, and forgiving if something goes wrong. A small fish dying in a mature 100-gallon tank would probably not have any effect on the water quality. That same dead fish would most likely cause an ammonia spike, algae bloom and possibly further die off if it was left in a 20 gallon tank.
- Your fish will be less stressed in a larger tank (if you don't over-stock), as there is more room to evade aggressors, and to allow each fish to have it's own territory.
- It is also easier IMHO to use a surge device (wave-maker) in a larger tank. A 20 litre surge discharged into a 200 litre tank will cause a "tidal wave" to overflow the top. In a 500-litre tank the effect will be less than half, and in a 1000 litre tank it would probably not even cause a ripple.
- A pre drilled tank with an "overflow" weir is much better than a conventional tank with a siphon "overflow" to the sump. It allows for a much larger water flow, and is much safer to use, as there is no siphon that can "break" and cause the tank to overflow and/or the sump to run dry.

The disadvantages of a larger tank are mostly financial:

- It would cost a lot more to fill the tank, and to do partial water changes.
- One would require substantially more live rock, and sand, to achieve a decent looking, and properly filtered tank. As live rock and sand are amongst the most expensive purchases, a larger tank would increase the total cost most dramatically.
- One would obviously want more corals, etc. This would be added to over time, so work on a constant, long-term drain on the wallet.

- Practically, it's more difficult to reach all the "spots" in a large tank when you're doing maintenance and cleaning.
- The greater amount of living creatures, and costly live rock, etc. increases the financial risk of losing a major investment if there is a long-term power blackout, the tank cracks, an outbreak of disease, or other disaster. This would cause you to consider the purchase of "back up" equipment, such as a power generator if you want to sleep well at nights.

Lighting

This will depend on the type of set-up:

- "Fish Only" (FO) tank only needs enough light to view the fish comfortably.
- If you use "Live Rock" (FOWLR) in your tank, then you should not have less than 2.5 - 3.0 W/gal (more is better).
- "Soft" corals such as star polyps and mushrooms require about 3-4 W/gal (again, more would be better).
- Hard corals, clams and anemones need a minimum of 6-8 W/gal, depending on the water depth.
- Normal Output (NO) fluorescent lights are mostly used on FO or FOWLR systems, but can be used quite successfully on Reef tanks as well, provided one has the space to accommodate all the tubes. As an example, I have kept a Carpet Anemone in my marginal reef tank for more than 8 months, using 8 x 40W NO tubes on my 55 gal. tank. (I have since upgraded to Metal Halides)
- PC (Power Compact) fluorescent lamps are nearly as bright as Metal Halides, and are quite suitable to keep all types of marine animals in all but the deepest tanks. They are quite expensive, though, and not always obtainable.
- VHO (Very High Output) fluorescent lamps are "old technology", and are being superseded by the PC's or MH's.
- MH (Metal Halide) lamps are the brightest lamps available, and nearly equal the intensity of sunlight. They are probably the most suited type of lighting for deep tanks, and for "Reef" type set-ups with light loving animals such as SPS corals, clams and anemones.

The light "Colour temperature" is also very important. Water "absorbs" the longer wavelength light (the red, orange and yellow colour) at a shallower depth than the shorter wavelength light (green, blue and violet). If one descended from the surface of the ocean, the red light would disappear first, and the last light remaining at depth would be violet.

Sunlight at the water's surface has a colour temperature of 6,500K. I don't have exact figures, but I believe that the 10,000K light spectrum approximate a depth of around 10m (33') below

the surface, and the "bluer" 20,000K spectrum is equivalent of light at a depth of about 20m (66').

Because *most* corals live closer to the surface, 10,000K light would actually be more natural for them than 20,000K light. If one were to set up a "deep water" tank, containing species living at greater depth than that of a "normal" shallow reef, one would be better off to use the 20,000K lamps.

The following links may explain this in more detail:

- Reef Tank Lighting - http://www.reefs.org/library/talklog/a_thiel_060197.html
- Lighting - http://www.reefs.org/library/talklog/i_ashdown_060798.html
- Photosynthesis/Irradiance (P/I) Curves and Why They Are Important to ReefKeepers - http://www.reefs.org/library/talklog/d_riddle_090599.html

Filtration:

- Skimmer - This removes biological waste before it can decompose into ammonia, etc, and thus lightens the load on the bio-filter. Do not skimp on the skimmer - buy the best you can afford. It is perhaps the single most important item you will buy, so rather get one rated at twice your capacity than get one which cannot cope.
- In a lightly stocked tank live rock and/or live sand "biological" filtration is all that is required (apart from the skimmer, that is).
- In a more heavily populated "fish only" tank, a Wet/Dry trickle filter is probably the best biological filter, though it will lead to a higher nitrate level than live rock filtration.
- Canister filters are good "mechanical" filters, but they tend to produce an excess of nitrates in the tank.
- Under-gravel filters should be avoided where possible, as they also produce unacceptably high nitrate levels.
- A sump - get the largest practical tank, plastic container, etc, which will fit below your tank (or anywhere else that's convenient). A sump is not really essential, but it does increase the total water volume, and allows one to keep all the ugly equipment (such as heaters, chiller, skimmer, and just about anything else) out of the tank. It is also a great place to make a refugium, and it allows for a more efficient gas exchange due to the tumbling action of the water flowing down into it.

Fresh-water Filters

- It is very important to use pure, unpolluted fresh water to replace evaporated water, and to make the salt-water used for partial water exchanges. Using ordinary tap water

invariably leads to algae outbreaks.

- RO (Reverse Osmoses) filters are the cheapest in the long run, and they remove 95% (or more) of the contaminants from the water.
- DI (De Ionization) filters become exhausted quite soon, and need frequent replacement. This makes this type of filtration quite expensive. DI units typically remove 99% of all contaminants while "fresh".
- One can combine the two, first using RO and then DI. This results in the purest water, but IMO is not really necessary.
- One could also use a "hand held" water purifier, such as Nitragon, or a household unit such as the Brita filter. These units are actually small DI filters, and work quite well while fresh. Because of their small capacities they are quite expensive, though.

Other equipment:

- Heaters: Work on using about 2W/gal to raise the tank temperature 5 degrees F above the room temperature. (Thus for a 55 gal. tank you would need ~ 300W to raise the temperature to ~ 75 F if the surrounding temperature is ~ 60 F). It is better to use two or three smaller heaters than one large one. If a smaller heater fails on, it is unlikely to boil your tank, and if it fails off the other heater can still supply some heat until you (hopefully) discover the problem.
- Air pumps: This is not normally needed if you have adequate circulation. It is good to have a standby unit for an emergency, though. I also use mine to aerate freshly made salt water used for partial water exchange.
- Thermometer: Get an accurate glass or electronic one - those little "stick on" types are not accurate.
- Hydrometer: These are notoriously inaccurate. Get a good glass type, and make sure you know for which temperature it is calibrated.
- Pumps: Good water circulation is essential. Buy a good quality return pump (if you're using a sump), and one or two additional power heads. A "surge" device or "wavemaker" is a good addition, but is not essential.
- Live rock: get about 20% - 40% of the tank's volume of live rock. This is essential for long term water stability (read: low nitrate level).
- Sea salt: There are many makes of salt, and not all of them are good. Read the package label, and ask questions on the Net before you buy it. You will not only need salt for the initial makeup, but also for regular partial water changes (about 10% - 20% of water volume every 2 - 4 weeks, depending on stocking level, etc).
- "Incidentals": You will need some test kits, additives such as buffer and calcium, a fish net, some containers to mix your water...

Tank "Cycling"

To be honest, whenever I hear this term, I envisage this large, all glass tank, riding around on a bicycle ...

The term "cycling" is actually a bit of a misnomer, IMHO. In our hobby, it usually refers to a state where the aerobic component of the filtration system has "matured" to such an extent that there are enough aerobic bacteria present in the system to convert the ammonia/um generated by the tank's bio-load into nitrite, and the further conversion of the nitrite into nitrate. In actual fact, this only completes the first phase of the *actual* nitrogen cycle.

Until a few years ago, that was as far as the process could go, resulting in a slowly increasing level of nitrate, which could only be reduced by partial water changes. Thanks to the "discovery" of live rock, and later of live sand, the "cycle" can now be completed by anoxic bacteria living in these substances, further converting the nitrate into inert nitrogen gas.

In hobbyist's terms, a new system is considered to be "cycling" when there are still detectable levels of ammonia/um and/or nitrite in the water. A system is considered to have "cycled" when these levels drop to zero, and the nitrate level starts to increase.

The important thing to remember is that a tank does not "cycle" only once. The system will reach equilibrium, where there is enough aerobic bacteria living in the filters to maintain an undetectable level of ammonia and nitrite *with a given bio-load*. Any increase in the bio-load, such as when a new fish is added to the tank, will upset this equilibrium, by "flooding" the system with more ammonia/um than the bacteria can digest. Obviously, with more "food" available for these bacteria, they will multiply (assuming that food was the limiting factor), and in time the system will reach a new equilibrium, able to handle this increased bio-load. This does take time, though, and in the meantime the increased level of ammonia and/or nitrite could be poisoning all the fish.

How to "Cycle" a new tank.

In order to "cycle" a new set-up, one must introduce a source of ammonia/um. In the past, this was usually done by adding some hardy fish (usually Damsels) to the new tank. Although this works very well in a bare tank (with outside filtration), it's not recommended for two reasons:

- It is cruel to keep any fish, no matter how "hardy" in water containing near toxic levels of pollutants.
- Damsels are very aggressive, and once the tank has "cycled", they consider the whole tank as their exclusive territory. They will attack, and possibly kill, any new fish being introduced to the tank. To make matters worse, the rock in a typical reef tank makes it

hard, if not totally impossible, to catch them when you eventually decide to replace them.

I would start the cycling by initially only adding the sand. Let it settle for 2 - 3 days, with all the circulation going. Then, add one or two pieces of base quality live rock, and one or two dead prawns or cocktail shrimps (the food type, not a dead one from a LFS - that could be carrying any number of diseases!). At this time, start testing the water for ammonia daily. You should notice an increase in the reading, and after a few days, the reading should stabilize, and then slowly start to drop (this could take 1 - 2 weeks). At that stage, start testing for nitrite as well, and keep on testing for ammonia. You should now notice an increase in nitrites, and a decrease of ammonia. After another week or so, the ammonia level should be fairly low, and the nitrite level should have reached it's peak.

Once the nitrite level has also started to drop, you can add the rest of the base quality live rock, and once both the ammonia and nitrite levels have become unreadable low, you can then add the good quality live rock (containing many interesting inverts). This could cause another ammonia & nitrite "spike", although it will be much smaller than the first. This is not critical if you're patient - just let the tank settle for another month or two before adding fish. This should give the macro algae and small critters on the LR time to recover, and to multiply to sustainable levels in the LR, and to migrate into the sand. During this time, you should also add some live sand, and/or some live sand "starter kits" and "reef janitors". Also, don't be concerned with the initial algae growths - it's quite normal to have some diatom, cyano, and hair algae growing as the maturation progresses.

"Cycling" a new system with uncured live rock.

Introduce the LR after the tank's been up about a week, and use it to cycle the tank. Wait at least two months before introducing the first fish.

Advantages:

- You don't stress (or kill) any fish, and do not have to add fish that you will have to remove at a later stage.
- You don't need to buy fully cured LR. In fact, the cheaper, uncured LR causes a better cycle, and usually have more diverse life forms in/on them.
- You can introduce all the rock at once, do your "rockscaping", and have the tank completely set up when introducing the first fish.
- You will have amazing growth of whatever comes on the LR - with no fish to eat them, you will get all kinds of macro algae, featherduster worms, soft polyps, even some corals, growing.

- You will also enable the "small life", such as copepods and amphipods, to establish and multiply to such an extent that they should survive predation by your fish. Obviously, if you only have 2 or 3 of a species to start off with, and they're eaten by a fish on the very first day, none will multiply after that.

Disadvantages:

- You will have to wait before you introduce any fish.
- Because the initial bio load was smaller, you will have to add your fish at a much slower tempo to avoid causing another ammonia/nitrite spike.
- You might have some algae growing on the LR. This is usually not a problem, though, as you start off with a nutrient poor set-up, which can be easily maintained, as there are no fish to feed. Also, the growing macro algae compete for nutrients, thereby restricting the growth of nuisance algae.

Deep Live Sand Bed filtration:

A general rule of thumb is to have a 4" layer of fine, graded sand, although the actual thickness would depend on the size of the sand. The finer the sand, the less water flow is possible between the particles, and the thinner the layer needed to achieve an anoxic zone in the sand. IMHO the very small size sand, though "perfect" for nitrate reduction, is not what occurs naturally, and does not allow hiding places for many small critters. My sandbed is made up of ~75% natural sea sand (shell grit and silicon sand, ranging from ~0.5mm to ~6mm in size) and ~25% crushed coral sand (approximately 1-2mm in diameter). I have found that the areas containing the coarser particles have a greater abundance of small critters.

Here are some links to interesting articles (hope they still work...):

- The Why's and How's of Sand Beds: The Role of the Benthos in the Reef Aquarium Ecosystem by Ronald L. Shimek, Ph D. - http://www.reefs.org/library/talklog/r_shimek_090698.html
- Sandbed FAQ by Charles DeVito - <http://www.reefkeepers.org/faq/cache/33.html> (*url dead 8/24/04*)
- Sand Beds by Jonathan Lowrie - http://www.reefs.org/library/talklog/j_lowrie_061498.html
- The Quantitative Comparison of Two Nutrient Removal Systems by Paul Auger - http://www.reefs.org/library/talklog/p_auger_081599.html

Using Additives:

It's quite human to want to add all kinds of things to help our creatures. The manufacturers and shops know this, and make a lot of money out of this "weakness". Unfortunately, many of these "snake oils" are just expensive water (perhaps coloured). Others do add trace elements, but an excess of many of these elements are actually detrimental to your tank (amongst other things, it tends to make cyano and hair algae grow...).

Under normal circumstances, one should only add buffer (to keep the alkalinity up), and a calcium supplement if/when there are hard corals (LPS or SPS) or other calcium using life forms in the tank. Either use one of the "balanced" two-bottle supplements, or add Kalkwasser. If you do not have many calcium absorbing animals (such as corals), then you probably don't need to add calcium supplements. You then also don't need those high calcium levels normally quoted for a reef tank.

Note that the long-term addition of calcium chloride will result in a gradual increase of the chloride content of the water. This will eventually result in your water's chemistry being quite different from that of natural seawater, which is not good at all.

Apart from this, I would not add any supplements unless I could test for it, and found a deficiency, as regular partial water changes would replenish the trace elements used up by the inhabitants.

I realize that I've only skimmed the surface of starting with this great hobby (pun intended), but I hope that this article can be of some use to someone out there..

Editor's Comments:

The above article is the property of Hennie Landman and has been republished with his permission. My editing was limited to checking spelling and grammar (if applicable) and putting Hennie's article into the Fish 'N' Chips format.

Please visit Hennie's site for this article, a huge collection of beautiful photos and much more. Hennie's "Indoor Reef" can be found at <http://www.reefmaniacs.com/hl/>.

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Caught In The Net

By Elizabeth M. Lukan 6/23/03

New Stuff Found

On Advanced Aquarist's Online Magazine (<http://www.advancedaquarist.com/>):

- Volume II, Issue 4, April 2003 is now available.
- Volume II, Issue 5, May 2003 is now available.

On Reefs.org (<http://www.reefs.org/>):

- Article: *Actinic Lighting* by Various Authors
- Talk: *Winds of Change in the Marine Aquarium Industry: Observations on the Marine Aquarium Council Certification Program in the Philippines* by John Brandt, 3/30/03

Marine Aquarium Council Update Third Quarter 2002

- The first MAC Certifications:
 - The Batasan Tropical Fish Collectors Association in the Province of Bohol, Philippines, and their collection area were the first in the world to achieve MAC Certification and were confirmed by the London-based MAC Accredited certification company IMS International in August 2002. This will be formalized in early October 2002 with the presentation of the MAC Certificate of Registration to the Batasan collectors. Expected to participate in the ceremony are officials from the barangay (local community), municipality, province, and, possibly, national government.
 - Manila-based exporters Aquarium Habitat, Aquascapes, and HD Marineworld also achieved MAC Certification.
 - IMS International assessed the collection area and the organizations for their compliance with the appropriate MAC Standard in late June 2002.
 - Collection areas were assessed to the Ecosystem and Fishery Management Standard; collectors to the Collection, Fishing and Holding Standard; and exporters to the Handling, Husbandry and Transport Standard.
 - A Michigan import company and four Midwest retail facilities in the USA were assessed in mid September 2002 for their compliance with the MAC Handling, Husbandry and Transport Standard by the Vancouver-based MAC Accredited certification company Shizen Megumi. The reports are promising and in early October 2002, these companies will most likely become the first import and retail facilities in the world to achieve MAC Certified status.
- MAC Certified from reef to retail becomes reality:
 - To be MAC Certified, marine aquarium organisms must be collected from a

MAC Certified collection area by a MAC Certified collector and pass only through MAC Certified facilities (e.g., exporter, importer, retailer) from reef to retail.

- In this way, hobbyists can be sure that the fish they buy are net caught from a managed collection area and that the organisms have been handled only by trained staff at quality facilities.
- Hobbyists and industry operators will be able to log on to the MAC website to locate the certified facilities.
- Within these facilities, the MAC Certified organisms will be found in the tanks with the Marine Aquarium Council Certified label.
- Retailers will obtain significant benefits through MAC Certification
 - During the summer of 2002, Aldwin Co, a business administration graduate student, conducted a cost and benefit analysis of MAC Certification for the US retail sector of the marine aquarium industry.
 - The research showed that all of the companies involved in the study would attain significant savings and increased profitability by becoming MAC Certified and carrying MAC Certified marine aquarium organisms.
 - Co completed a detailed documentation and analysis of income and expenditures at four retail companies of varying sizes and types.
 - A number of the companies that Co worked with found the research useful. He helped them evaluate their true costs and what would be needed to ensure that their desired profit margins were realistic and/or accurately used. He also helped them better understand what they would need to do to become MAC Certified.
 - Co assisted in the design of a manual for an inventory management and point-of-sale software program that can be used by the retailers to support their MAC Certification compliance efforts. His work with the software package has filled a critical need for MAC and for the industry. MAC is pursuing the development of this software.
 - While the individual company reports are confidential, the general report *MAC Certification and US Retailers: Costs and Benefits* will be made available on the MAC website.
- Two new MAC Information Sheets describe the major work that MAC is undertaking to ensure collectors are trained in responsible, environmentally sound fishing practices (e.g., net-collecting, post-harvest handling); the work with fishing communities to develop Collection Area Management Plans, including fish sanctuaries; and the conservation benefits of MAC Certified collection areas and fisheries. The Information Sheets "*MAC Work with Fishers and Their Communities*" and "*Conservation Benefits of MAC Certification*" will be posted on the MAC website in October 2002.
- MAC attended the Queensland Aquarium Supply Divers Association (QASDA) at their

Annual General Meeting in August 2002. All of the QASDA members present voted to work closely with MAC, and some members declared their intention to become MAC Certified in the near future. The presentation was videotaped and was replayed at the QASDA Annual General Meetings in Yeppoon and Brisbane.

- MAC Info Kit for Hobbyist Clubs:
 - In mid-2002 MAC completed an initial one-year effort aimed at raising awareness among hobbyists.
 - The project included development of an information kit for marine aquarium hobbyist clubs, the publication of articles in aquarium magazines, postings on websites and the development of a MAC website area for consumers.
 - The MAC Info Kit for Hobbyist Clubs contains a 12-minute narrated PowerPoint presentation (also available as a slide show) and an eight-page booklet specifically designed for marine aquarium enthusiasts, as well as several informational sheets, news clips, a colored map depicting the global trade in marine aquarium organisms and more.
 - The kit and extra copies of the booklet were mailed to about 40 marine aquarium societies in the US and Canada and are available to interested groups.
 - In 2003, MAC's hobbyist outreach effort will focus on partnerships with retailers in several key geographical areas.
 - For more on these outreach efforts or to obtain a copy of the informational kit for your hobbyist club, please contact MAC Communications Coordinator Sylvia Spalding at info@aquariumcouncil.org.
- The World Wildlife Fund US launched an online Consumer Awareness project this summer, with MAC selected as the first organization to be featured. The site includes a profile of the Palauig collectors association in the Philippines, which is actively working to become MAC Certified; suggestions on how consumers can support MAC Certification; and background information on cyanide use, the need for a certified marine aquarium industry and the role of the Marine Aquarium Council. To view the site, <http://www.worldwildlife.org/consumer/> (*updated 8/14/04*).
- World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa in late August 2002.
 - Frank Vorhies, a MAC Board vice chair and head of the IUCN (The World Conservation Union) Business and Biodiversity Initiative, organized MAC participation during the IUCN Business Day at WSSD.
 - MAC Board Member Charles Barber provided a briefing on MAC Certification as a sustainable development tool and also participated on the Consumers Dialogue panel entitled "*Do certification schemes benefit biodiversity?*"
 - Those who attended were supportive of MAC, and participants from the United Nations Environment Programme (UNEP) and industry representatives from South Africa expressed a strong interest in MAC Certification.

- Bruce Bunting, chair of the MAC Board and vice president at the World Wildlife Fund (WWF)US, worked with Brooks Yeager, WWF-US Vice President for Global Threats and the senior WWF-US representative to WSSD, to include information on MAC in his presentations made at the WSSD coral reef events.
- MAC materials were made available to thousands of WSSD participants at the Reef Check booth, Ubunts Center.
- MAC Pacific Region Coordinator Michelle Lam represented MAC at the 7th South Pacific Nature Conservation and Protected Area Conference in the Cook Islands in July 2002. She gave two presentations. The first one was to a group of journalists selected to attend the conference by SeaWeb. This presentation was followed with a visit to a local company exporting marine ornamentals, to give journalists a firsthand experience of the trade. The second presentation, updated the conference participants, on the work of implementing MAC Certification in the Pacific.
- US Coral Reef Task Force
 - The US Coral Reef Task Forces report entitled 2001 Accomplishments and Future Activities notes that, as part of its efforts to reduce impacts from international trade, the Task Force worked with the Marine Aquarium Council to develop an international certification program to promote sustainable use of coral reef species in the aquarium industry.
 - Among future needs, the report lists work with the marine aquarium industry and various stakeholders to eliminate destructive collection practices, reduce mortality during handling and transport, and promote industry-led certification schemes that are rigorous, environmentally sustainable and include equitable distribution of profits to local communities.
 - The report will be presented to the Task Force when it meets Oct. 2 and 3, 2002, in Puerto Rico.
 - MAC's Sylvia Spalding and David Vosseler will be in Puerto Rico to attend the Task Force meeting and the Caribbean Regional Workshop on Coral Reef Fisheries Management.
 - The Task Force will also be presented with a report entitled NGO Contributions to Conserve Coral Reefs, which was prepared by the Task Forces Outreach and Education Working Group, of which MAC is a member. In the report, MAC is one of the nine representative organizations that are highlighted.
- MAC Team Meeting in the Philippines
 - MAC field staff from throughout the Philippines attended to provide perspective on their work with collectors and other stakeholders.
 - For several days, MAC staff worked toward finalizing documents to support MAC Certification, including implementation manuals for the MAC Standards, the MAC Certified label regulations and guidelines and collection area site selection parameters, among others.

- Gregor Hodgson and Domingo Ochavillo of Reef Check reported on progress of the MAC reef assessment methodology (MAQTRAC) and discussed development of a rapid assessment methodology to help select candidate collection areas to become MAC Certified.
- Inclement weather kept the MAC staff from visiting the Palauig collection area in Zambales, but they did visit the Batasan collection area in Bohol, met with the mayor of Tubigon, dove with collectors and attended a meeting between the collectors and local government authorities.
- MAQTRAC Training (Cebu, Philippines, November 2002)
 - Reef Check has worked with MAC to develop the "Marine Aquarium Trade Coral Reef Monitoring Protocol" (MAQTRAC). It was field tested in the Philippines, Indonesia, Fiji, Hawaii and the Maldives from mid-2001 through mid-2002 and peer reviewed in two international workshops.
 - MAQTRAC enables reef areas to be assessed and monitored on a consistent basis within the framework of the MAC Certification.
 - Reef Check will conduct training in the use of MAQTRAC on Dec. 2-3, 2002, in Cebu, Philippines.
 - The MAQTRAC training will take place following the International Tropical Marine Ecosystem Management Symposium (Manila, Nov. 25-28) and training in Reef Check's overall reef monitoring methodology (Cebu, Nov. 29-30).
- On Jan. 26, 2003, MAC will host the Marine Aquarium Hobbyist Day at the Aquarium of the Pacific in Long Beach, California, US. Marine aquarium hobbyists will have free admission to the aquarium with a coupon being distributed through aquarium society newsletters, trade magazines, etc. Aquarium visitors will be treated to a special series of talks and an assortment of informational booths featuring local marine aquarium importers and retailers and other relevant organizations. Plans are underway for similar events in one or two other venues in 2003 as part of the launch of MAC Certified marine aquarium organisms in the US market.

Remember to visit the MAC website at <http://www.aquariumcouncil.org/> for more information and to subscribe to the newsletter.



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Marine News

By Elizabeth M. Lukan 7/6/03

4/1/03 - MA, USA:

Oceana, an international ocean advocacy group, filed suit in federal court against the U.S. National Marine Fisheries for its scallop fishery management efforts in New England and the Mid-Atlantic waters. The organization believes the National Marine Fisheries scallop policy does not safeguard against the impacts of scallop dredging, and fails to protect sensitive marine habitats and endangered sea turtles.

News Release: <http://ens-news.com/ens/apr2003/2003-04-01-09.asp#anchor4> (*url dead 8/24/04*)

4/2/03 - NJ, USA:

Department of Environmental Protection Commissioner Bradley Campbell announced that New Jersey is acquiring 250 obsolete New York subway cars for placement on five offshore artificial reef sites.

News Release: <http://ens-news.com/ens/apr2003/2003-04-02-09.asp#anchor8> (*url dead 8/24/04*)

4/3/03 - DC, USA:

The government has listed the smalltooth sawfish as endangered under the Endangered Species Act. According to the announcement by the National Marine Fisheries Service, this is first endangered listing for a marine fish in U.S. waters.

News Release: <http://ens-news.com/ens/apr2003/2003-04-03-09.asp#anchor3> (*url dead 8/24/04*)

4/9/03 - CA, USA:

175 square miles around the Channel Islands National Marine Sanctuary are officially protected. These protected waters are the largest scientifically designed network of marine reserves in the continental United States.

News Release: <http://ens-news.com/ens/apr2003/2003-04-09-09.asp#anchor5> (*url dead 8/24/04*)

4/17/03 - NY, USA:

Three New York zoos and the New York Aquarium are facing grim budget figures for fiscal year 2004, and the Wildlife Conservation Society, which operates these facilities for the city, is scrambling for funds to keep the animals now in their care.

News Release: <http://ens-news.com/ens/apr2003/2003-04-17-02.asp> (*url dead 8/24/04*)

5/6/03 - CA, USA:

A new species of jelly has been discovered by scientists at the Monterey Bay Aquarium Research Institute, living 2,000 to 4,800 feet below the ocean's surface. This large, deep red

jelly has a bell diameter of up to a meter wide and is so different from other jellies that it had to be assigned to a new subfamily - Tiburoniinae.

News Release: <http://ens-news.com/ens/may2003/2003-05-06-09.asp#anchor8> (*url dead 8/24/04*)

5/7/03 - Dar Es Salaam, Tanzania:

Dynamite fishing, coral mining, and the use of seine nets have destroyed much of Tanzania's coastal reefs, but now the government is getting serious about protecting these unique and fragile reefs. Tanzanian environmental experts are assessing the condition of the country's coral reefs, which are being threatened by human activities both legal and illegal.

News Release: <http://ens-news.com/ens/may2003/2003-05-07-03.asp> (*url dead 8/24/04*)

5/12/03 - BC, Canada:

The world's smallest known species of seahorse, mistaken in the past for the offspring of another species of seahorse, has now been identified as a unique species. *Hippocampus denise* are typically just 16 millimeters long.

News Release: <http://ens-news.com/ens/may2003/2003-05-12-03.asp> (*url dead 8/24/04*)

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Upcoming Events

By Elizabeth M. Lukan 5/28/03

| Event | Start Date / Time | End Date / Time | Location | Event Details, Notes, and For More Info |
|--------------------------------|-------------------|-----------------|----------|--|
| Aquarium Survey for Mike King | now | unknown | | Reefs.org: http://www.reefs.org/survey/mike_survey.html |
| Fan Shell Survey | now | unknown | | Marine Conservation Society, http://www.mcsuk.org/ |
| Lighting Survey | now | unknown | | Reefs.org: http://www.reefs.org/ |
| Marine Aquarist Profile Survey | now | unknown | | Reefs.org: http://www.reefs.org/ |

| | | | | |
|--------------------|-----|---------|--|--|
| Salinity Survey | now | unknown | | Reefs.org: http://www.reefs.org/ |
| Salt Mix Survey | now | unknown | | Reefs.org: http://www.reefs.org/ |
| Temperature Survey | now | unknown | | Reefs.org: http://www.reefs.org/ |

To Submit Your Event: Send your event and all the specifics (date, time, location, pricing, contact info, etc.) via email to fishnchips@mindspring.com (visit <http://www.marinefiends.com/submit.html> - updated 10/12/05) and I'll publish it in all issues of Fish 'N' Chips prior to the event.

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Prove It!, a Bibliography

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Article: Marine News

- Environment News Service, <http://ens-news.com/>

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To view the current issue of Fish 'N' Chips, visit <http://www.marinefiends.com/current.html> (*updated 8/24/04*).

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