June 11, 2008

tideline aquatics Newsletter

Tideline Aquatics Store Hours

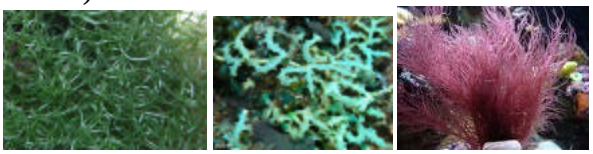
Monday – Friday	11am-7pm
Saturday	10am-6pm
Sundays	1pm-5pm

REFUGIUMS IN THE MARINE AQUARIUM AND THEIR PURPOSE

The original purpose of a refugium was just what the name implied; a place for micro-organisms to find refuge. Tiny copepods, amphipods, shrimp larvae, worms and other burrowing creatures have a safe haven away from predatory fish. This allowed for a constant source of these organisms as they became pumped into the main aquarium. But there are so many other benefits to a refugium as well. With the addition of a light, macro-algae grow in the refugium without being eaten up by tangs, rabbitfish, angelfish and the like. As the macro-algae expand, it can be harvested and fed to the fish in the main aquarium. This macro-algae also utilizes nitrates and phosphates in the aquarium water meaning reduced organics for problem algae to thrive on – so less algae growth in the main aquarium! The type of substrate you use in the refugium can also benefit the main aquarium. Most often, special mud is collected and packaged for use in the bottom of the refugium. This mud contains trace minerals and nutrients beneficial to your fish that are often removed by protein skimming and activated carbon. And then there is the oxygen factor. Most often it is recommended that the refugium lights remain turned on 24 hours per day. The macro-algae photosynthesize providing plenty of oxygen to the main aquarium thus helping to stabilize the pH when the aquarium lights are on or off.

MICRO-CRUSTACEANS THRIVE IN THE REFUGIUM

In the reef aquarium, the refugium can be used as the sole filtration system with the addition of detritus trapping sponges and/or pads, the use of a protein skimmer and a bag of activated carbon (and other chemical media). The live rock in the aquarium serves as the biological filter, the refugium serves as a mechanical and chemical filter (as well as the other benefits discussed earlier).



CHAETOMORPHA CAULERPA SP. GRACILARIA SP.
ALL MACRO-ALGAE SPECIES SUITED FOR REFUGIUMS

In fish-only systems, a refugium can be connected to the wet/dry filter. The benefits of the refugium can then be utilized even in a fish-only aquarium. As with any fish aquarium, at some point your animals may require a treatment for a parasite disease. Since your refugium is installed next to your wet/dry filter, it can be separated from the main system via a ball valve. During the treatment of the main aquarium, the refugium can still be operating independently from the main tank by using a simple air stone to

provide oxygen and circulation while the main tank is being treated. Since copper treatments kill tiny invertebrates like burrowing worms and crustaceans, they will be safe in their separated environment while the fish are being cured in the main tank. Without a fish host, the parasites that may have made their way into the refugium will die off. Once the main aquarium has been through a complete 30 day copper regiment to kill the parasites on your fish, the copper can then be removed from the main tank. Once all the copper has been removed, you can then reconnect your refugium to the main aquarium by turning on the ball valve. Now all of your refugium inhabitants can once again thrive and your main tank will once again benefit from the life in the refugium!

AQUARIUM LIFE SUPPORT SYSTEMS ADD-ON REFUGIUMS

ECOSYSTEMS QUALITY MIRACLE MUD FOR USE AS A REFUGIUM SUBSTRATE

COMPONENTS FOR A LOW MAINTENANCE GARDEN POND

Now that the Pond Tour has ended, many of you may be considering putting a garden pond or koi pond in your yard. The biggest mistake someone considering a garden pond makes is improper planning. A water garden, just like a landscape, requires some thinking and planning before making a purchase. Where is the proper location for a garden pond? What shape and size do I need? Do I want a pond with colorful koi or do I just want to keep low maintenance common types of goldfish? What filtration components are required? What types of water garden plants do well in Charleston's climate and what type of care will they require? These are the questions I will answer for you here.

LOCATION:

A garden pond should be placed in an area where it will receive at least 6 hours of sunlight per day. Water lilies, bog plants and lotus will refuse to bloom if these light requirements are not met. Though the plants will survive, under low light conditions, most aquatic plants that are available for water gardens will perform poorly. Placing a garden pond near or under the canopy of certain trees can become a maintenance nightmare. Live oaks, sycamores, pine trees, river birch and magnolias will all add to the amount of time you spend cleaning your pond instead of enjoying it. Choose an open area with plenty of sunshine for best results.

KOI REQUIRE DEEP LARGE PONDS TO GROW

SIZE, SHAPE AND DESIGN:

When designing your garden pond, choose a shape that will allow the filtration system to circulate the water in all areas of the pond. Circular, kidney shaped, rectangular and oval shaped ponds will reduce the amount of time you will have to spend dipping out leaves and other debris. To reduce the chances of your fish being a meal for water fowl like osprey, cranes and herons, dig the pond at least 24" deep. If a bird does come in for a quick meal, the fish can move into the deeper water for protection. If you are planning on keeping koi in your garden pond, dig

the pond at least 36" deep. In order for koi to reach any size, plan on a pond of 3000 gallons or more. Koi are also destructive to aquatic plants so plan an area of the water garden that can be separated just for placing water lilies and other aquatic plants. In smaller ponds, or those designed mainly for plants, goldfish varieties are available that will not harm your plants or outgrow your pond. In a pond with goldfish, the plants can be housed throughout keeping in mind the depth at which the plants will be placed. Dig out shelves along the perimeter of the pond no deeper than 18" from the surface. Aquatic plants can be placed anywhere on the shelves where the water surface is calm. The use of EPDM rubber liner material that is 45ml thick is one of the least expensive and versatile materials for lining the pond. Liners will conform to nearly any shape and are durable, lasting up to 20 years if cared for properly. The perimeter can be finished off using decorative rock for informal settings or brick if you have a more formal design. We have a handout with a formula to help you determine what size liner you will need for your particular pond size. Avoid the plastic preformed ponds, they are too shallow and the plastic material tends to become brittle and crack with time.

CHOOSE A SHAPE TO ALLOW WATER TO FLOW EASILY FROM ONE END OF THE POND TO THE OTHER.

FILTRATION COMPONENTS:

The most important (and costly) part of a garden pond is the filtration system. Every pond should incorporate a surface skimmer, a mechanical filter, a biological filter, a chemical filter, an ultra violet clarifier and in larger ponds, a bottom drain. You will also need a circulation pump that will turn over the volume of your garden pond at least once per hour. If you are incorporating a waterfall in your pond, a larger pump will be required to get the desired effect over the rockwork. Here are the basics on the filtration components:

The surface skimmer attaches directly into the rubber liner of the pond. The skimmer draws water off the surface in order to catch leaves and other debris before it can settle on the bottom of the pond where you will have to remove it. Most skimmers incorporate a leaf catcher as well as a pad (a mechanical filter) for trapping finer debris. The water pump is often housed within the skimmer to protect the intake of the pump from becoming clogged with debris. Without a skimmer, the surface can become stagnant and you will spend many hours dipping out leaves and plant remnants.

The next component of the filtration system is the biological filter. It is crucial that a biological filter is used if you are keeping any fish in your garden pond. The purpose of the biological filter is to keep water parameters in check. Media like shredded PVC, ceramic or plastic rings and plastic ribbon offer surface area for beneficial bacteria to grow. These bacteria break down harmful ammonia and nitrite given off by the fish. Biological media should allow for good water circulation to provide enough oxygen to the bacteria living on the media. Though a cheap biological media, lava rock quickly becomes inundated with pond debris and fish waste causing it to become clogged and void of oxygen. Deadly hydrogen sulfide can be produced in these dead zones and if disturbed, can be released into the pond water killing the fish. Whatever biological media you purchase, protect the beneficial bacteria by rinsing the media with either well water, pond water or dechlorinated tap water.

To prevent pond water from becoming an ugly, thick pea soup green, the use of an ultra violet clarifier is a must. Inside the housing of an ultra violet clarifier is a germicidal UV lamp that kills free floating single celled algae thus keeping your pond water crystal clear. UV clarifiers are available in different wattages depending on the number of gallons in your pond and the flow rate of your water pump. We will assist you in determining the size UV suited for your pond.

With time, pond water will develop a yellow tint from fish waste and other dissolved

organic materials in the pond. The use of a chemical media like activated carbon placed in a nylon bag in the filter will quickly remove these organics. Accumulated organics in the water will encourage problematic algae like blanket weed and string algae. These algae will clog filters and destroy the beauty of your pond so it is important for you to keep filter pads cleaned and debris that is not captured by the filter dipped out from the water. Activated carbon changed out every 2-3 months will also help in keeping organic levels low.

In larger ponds or ponds that are extremely deep, the use of a bottom drain attached to a separate external pump will greatly reduce the maintenance. Bottom drains will draw in debris not captured by the skimmer and deposit it in a mechanical filter outside the pond. If you incorporate a bottom drain, install it in the lowest area of the pond where debris is likely to settle.

Now you have your filter components. The skimmer should be placed on one end of the pond. The water will be drawn into the skimmer, through the mechanical filter pads, through the chemical filter media via the water pump. From there the water should be circulated through the UV clarifier and lastly through the biological filter on the other end of the pond where the water will be returned. This will allow circulation through the entire water garden so that optimum filtration can be achieved. A good filtration system equals a low maintenance garden pond.

Now you have the liner and filtration in place. Fill the pond with water pulling out any wrinkles in the liner as it fills. Once filled, add a dechlorinator like Amquel or AquaSafe if you are using city tap water. If using well water, a dechlorinator is not necessary but have the well water tested to ensure that it is safe for fish and plants. We sell test kits or can test the water for you at the store.

PLANTS AND FISH:

In a new pond, add only a small number of fish for the first 4-6 weeks of operation. This will help establish the biological filter without overloading it and causing a large fish kill. It takes time for the beneficial bacteria to become established in the biological filter so have patience. Purchase inexpensive fish at first as this is the most stressful period for your pond inhabitants. This is also an excellent time to add your water garden plants. Not only will plants help in establishing the biological filter, they will also get a chance to become established before large numbers of fish are present offering the fish shade and protection from predators. Water lilies should be placed no deeper than 24" in the pond in areas that are void of splashing water. Keep lilies away from fountains, waterfalls and the intake area of the skimmer. There are both hardy and tropical water lilies available. The hardy lilies 'Charlene Strawn' and 'Denver' handle the Charleston heat and will bloom from late spring until frost. If placed in very shallow water, hardy lilies will produce leaves both on the surface of the water as well as above the water making a showy display of both foliage and blooms. Hardy lilies are available in white, pink, red, orange and yellow. The addition of tropical water lilies is a must! Though late to emerge, tropical lilies love the heat and the hotter it gets, the more blooms they produce. We suggest the cultivars 'Leopardess' and 'Panama Pacific'. Tropicals are more sensitive to winter damage but both of these have survived in my (Chris) personal pond for the last 4 years. There are also night blooming tropicals available. These lilies produce huge blooms from June until October that open at dusk and close around mid morning. Night blooming lilies are the most sensitive to winter cold so they may require replacing if we have a severe season. Tropical lilies should be placed no deeper than 18" above the crown of the plant. If you enjoy colors of blue, purple, deep red and bright pink, include some tropical lilies in your pond.

There are so many incredible marginal plants available for water gardens. Marginal plants

should be placed in water no deeper than 2”-3” above the top of the pot. We recommend these bog plants for their hardiness and beauty to the water garden:

Lotus – available in a number of colors and forms
Louisiana Iris – spring flowering only, often evergreen.
Colocasias – for larger ponds – great structure
Canna ‘Bengal Tiger’ – striking foliage all summer.
Hardy Cyperus – appeal in both summer and winter
Bog Crinums – delicate flowers over strapping foliage
Cattails – Typhas are hardy and interesting

Lastly, most water garden plants are potted in small 1 gallon pots when purchased. For best plant performance, repot aquatic plants in 3-5 gallon pots designed especially for water plants. Repot these plants in heavy soil designed specifically for garden ponds. Cover the soil of pond plants with large pea gravel to prevent fish from rooting out the soil. Water garden plants should be fertilized at least monthly throughout the growing season using fertilizer tablets developed specifically for pond plants. Regular pruning of spent blooms and old foliage will keep water garden plants beautiful from late spring until frost.

Take a step back and put together a budget that you can afford before you dig that huge hole in your backyard. There are filtration components available for nearly any budget but whatever you decide on, do it right the first time around so you will spend the majority of your time enjoying your pond. Like any hobby, it does require some regular maintenance but if you do it right, chances are you will be digging a larger pond in the near future!

WHATS NEW AT TIDELINE?

FEEDERS: (ARRIVING NEXT TUESDAY!!)
Feeder Goldfish (OUT), Feeder Rosy Redds (OUT), Feeder Guppies (OUT), Feeder Crayfish (PLENTY), Feeder Fiddler Crabs (PLENTY), Live Black Worms (LOW), Feeder Ghost Shrimp (OUT).

FRESHWATER FISH:
Livebearers – Sailfin Platies, Assorted Platies, Silver Mollies, Black Yucatan Mollies, Dalmation Mollies, Red Swordtails, Tuxedo Swordtails, Endler’s Livebearers.

Catfish/Loaches/Plecostomus – Corydoras Schwartzi Catfish, Cool Zorro Shovelnose Catfish, Otocinclus Algae Eaters, Clown Plecostomus, Rubber Plecostomus, Common Plecostomus, Four-line Pictus Catfish, Green Gold Corydoras Catfish, Albino Corydoras Catfish, Punctatus Corydoras Catfish, Clown Loaches, Banded Coolie Loaches, Yoyo Lohachata Loaches, Striata Loaches.

Brackish – Tank Bred Mono Sebae, Green Spotted Pufferfish, Archerfish.

Tetras / Rasboras / Barbs / Danios – XL Neon Tetras, Marble Hatchetfish, Green Fire Tetras (awesome color), Lg Emperor Tetras, Black Skirt Tetras, Pristella Maxillaris Tetras, Rummynose Tetras, Gold Barbs, Giant Danios.

Gouramis / Bettas – Super Male Bettas, Gold Honey Gouramis (nice size), Neon Dwarf Gouramis, Powder Blue Dwarf Gouramis, Red Flame Dwarf Gouramis, Lg Gold Gouramis, Mixed Color Female Bettas.

Cichlids (Dwarf, South American, African) – Silver Veil Angelfish, Zebra Lace Veil Angelfish, Koi Angelfish, Gold Veil Angelfish, Medium Assorted Angelfish, Frontosa African Cichlids, Assorted Mbuna African Cichlids, Curvicep Dwarf Cichlids, Lg Geophagus Jurupari Eartheaters, Small Tank Bred Geophagus Jurupari Eartheaters, Pike Cichlids, Assorted Small Oscars, Assorted Medium Oscars, Texas Cichlids.

Other – Roseline Denisonii Sharks, Mixed Mystery Snails, Japanese Trapdoor Snails, Freshwater Nerite Snails, Bala Sharks, Colombian Shark Cats, Irridescent Sharks, Rainbow Sharks, Redtail Black Sharks, Lg Tiretrack Eels, Medium Silver Arowanas, Scarlet Badis Badis (very beautiful and cool), Dwarf African Frogs, Brown African Clawed Frogs, Red Starfire & Orange Glo-fish, Super Cool Red-Nosed Freshwater Algae Shrimp, Orange Japonical Shrimp, Red Cherry Shrimp, Common Japonica Shrimp.

Goldfish – Small Assorted Fantail Goldfish, Small Black Moors, Medium Black Telescope Eyes, Medium Assorted Orandas, Medium Assorted Ryunkin Fantails.

Koi, Pond Fish and Pond Plants – Small Domestic Koi, Small and Medium Butterfly Koi, Medium Domestic Koi, Jumbo Domestic Koi, Large Bright Red Comet Goldfish, M/L Shubunkin Goldfish, (Arriving Friday) New Shipment of Flowering Hardy and Incredible Tropical Water Lilies, Tons of new 1 Gallon Bog Plants, Lotus, Parrots Feather.

The list above represents only the most recent livestock shipment. We have MANY other species available at the store!

SALTWATER FISH:

Angels / Butterflyfish – Rare Goldflake Angelfish, Super Rare Blueline Angelfish, Juvenile Koran Angelfish, Juvenile Annularis Angelfish, Coral Beauty Angelfish, Mertensii Butterflyfish, Semilavartus Butterflyfish.

Clownfish – Goldbar Maroon Clownfish, Small Common Maroon Clownfish, Sebae Clownfish, Ocellaris Clownfish, Tank Bred – Skunk, Tomato, Ocellaris, True Percula Clownfish.

Gobies / Blennies – Klausewitz's Blennies, Yellow Priolepsis Gobies, RARE Dracula Gobies, Yashia Haze Gobies, Yellow Watchman Gobies, Helfrichi Firefish Gobies, Bicolor Blennies, Algae Blennies, Dragon Sifter Gobies, Golden Head Sifter Gobies.

Wrasses / Hogfish – Male Balteatus Fairy Wrasses, Temminck's Fairy Wrasses, Lunare Wrasses, Banded Wrasses, Hifin Fairy Wrasses.

Tangs / Rabbitfish – Small, Large & XL Blue Regal Tangs, Maldives Powder Blue Tangs, Lineatus Clown Tangs, Red Sea Purple Tangs, Naso Tangs, Unicorn Tangs, Yellow Eye Kole Tangs, Powder Brown Tangs, Red Sea Sohal Tang.

Triggerfish / Eels / Puffers – Small & Medium Dogface Pufferfish, Bluespot Sharpnose Pufferfish, Magnificent Foxface Rabbitfish, XL Bluespot Rabbitfish, Clown Triggerfish, Niger Triggerfish, Black Indicus Triggerfish, Humu Triggerfish, Snowflake Moray Eels.

Lionfish – Russel's Volitan Lionfish.

Other – Pajama Cardinalfish, Blue Eye Cardinalfish, Whiptail Snapper, Dark-Banded Fusillers, Bartlett's Anthias, Assorted Damselfish, Neon Velvet Damselfish, Royal Grammas, Purple Rhinopias.

INVERTEBRATES:

Snails / Cucumbers / Starfish / Urchins – XL Nassarius Snails, Indian Ocean Sea Apple, Chocolate Chip Starfish, Green Brittle Starfish, Cerith Snails, Red Striped Trochus Snails.

Crustaceans – Red Tip Reef Hermits, Blue Leg Reef Hermits, Cleaner Shrimp, Coral Banded Shrimp, Tiger Pistol Shrimp, Candy Cane Pistol Shrimp, Pom Pom Crabs, Sally Lite Foot Crabs, Emerald Crabs.

Corals / Polyps / Mushrooms – Beautiful Cultured Acropora Coral Species, Green Frogspawn Corals, Metallic Hammer Corals, Super Torch Corals, Alveopora Corals, Montipora Danae Corals (orange polyps), Spiny Cup Pectinia Corals, Green Seriatorphora Coral, Red & Green Lobophylia Corals, Orange & White Lobophylia Corals, Australian Super Symphyllia Coral, Australian Super Red Lobophylia Coral, Yellow Leather Corals, Green Mumps Leather Corals, Gold Ultra Spaghetti Leather Corals, Healthy Elegance Corals, Super Caulestra Candy Corals, Green Fox Coral, Green Eyed Cup Mycedium Coral, Yellow Branching Porties Corals, Green Pipe Organ Coral, Red Chili Soft Coral, Ultra Tonga Mushroom Rocks, Blue/Green Mushroom Rocks, Green Branching Star Polyp Rocks, Assorted Color Zoanthid Rocks.

Other – Red Hard Tube Coco Worm Dusters, Assorted Crocea Clams, Golden Derasa Clams.

This list is based on our most recent shipments of saltwater livestock. There are many other species available in the store not included in this list.