



The Sea Star



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October Meeting

The October 5th meeting is at the University Of Utah. (see map last page) Last months parking trouble during Greek Week is behind us now. We have every reason to believe that the crowds will be gone and the room will be great. It is a ground floor room called "The Den".

The parking is free and we will start at 7:00 PM. The "Spotlight" is on Incredible Pets with guest speaker, Jim Young, owner and founder. ♥

Don't Miss the Reef Tour October 13th and 14th

The biggest yearly event for the WMAS is the Reef Aquarium Tour to be held Friday evening from 6:00 PM to 9:00 PM and again the next morning Saturday the 14th from 10:00 AM to 3:00 PM. We have over 40 locations scheduled.

Admission for members and their family is free and we hope you will take the opportunity to visit many of your friends in the club. Invite your family and friends to accompany you. ♥

Spotlight on Incredible Pets

One of the best retail

Pet stores along the Wasatch Front is Incredible Pets at 8695 S. 2000 E. in Sandy. Jim Young began his store more than 5 years ago with a little help from his brother, Doug, owner of Bird World in Bountiful. ♥



GARF Seminar

Geothermal Aquaculture Research Foundation (GARF) is the best coral farm in the west. The first visit to GARF is usually a pleasant experience and just as enjoyable each return trip. One time some WMAS members happened to be at GARF when some Girl Scouts brought in some rare Freshwater Jellyfishes they had found in a pond in Boise. The members helped set up an aquarium to keep the interesting animals. The Seminar will begin Saturday the 21st with many famous guest speakers and conclude Sunday the 22nd with one on one training and

discussion regarding coral propagation and casual conversation about whatever. Call GARF at (800) 600-6163 to register and call a member of the WMAS Presidency to join the carpool. ♥

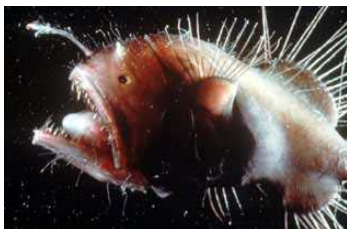
September Meeting

Brad Daniels kept us spellbound with his knowledge of the hobby and humorous anecdotes. He told of one person who came into the store asking if all the fish in their display tank were salt water fish! Another person came back twice for new fish because they were dying after a few hours in her tank. Brad tested the water and found it to be fine. Asking a few more questions of the person, he discovered that he was testing water from a freshwater aquarium!

Brad helped us understand how to deal with various problems we may encounter from time to time. ♥

The Deep Sea Anglerfish

By Monique Turner



The deepest part of the ocean, starting at 1000 meters, is called the

bathypelagic region. This area makes up 75% of the ocean. The sparse fish population, combined with the large area, makes a mate difficult to come by. The ceratoid anglerfish has found a unique way to ensure survival of the species.



The female anglerfish dwarfs the male by 10 or more times. The male searches out the female, sometimes taking years to finally find one. Once he does, he grabs hold of her side with his beak-like mouth, never to part again. How strange! As he continues to hold tight, his mouth tissue fuses with her skin, forming a permanent bond. Once the fusion has taken place, the male's internal organs degenerate as their circulatory systems intertwine and become one. The only thing that gets bigger in the little male is his testes. They continue to grow until they take up almost half his body. Now he is nothing more than a small parasitic bump on the female's side, to provide sperm as required. The story ends with the female having 2 or 3 males following her every move, every whim, in life and death.



Hermaphroditism

and Sex Change in Caridean Shrimps

By Raymond T. Bauer,
University of Louisiana

Although most species of caridean shrimp have separate sexes, a fair number are "sequential hermaphrodites" in which an individual is first one sex and then changes to the other at some later stage of life. Individuals are first male, then female (protandry). There are several variations on this theme.



A pair of "females" of the red cleaner shrimp, *Lysmata wurdemanni*. These individuals are actually simultaneous hermaphrodites, being able to reproduce both as male and female.

A recent exciting discovery is simultaneous hermaphroditism in shrimps of the genus *Lysmata*, unknown in other decapod crustaceans (shrimps, crabs, lobsters). In *Lysmata wurdemanni*, the peppermint or red cleaner shrimp of the Gulf of Mexico (above), individuals begin life as males, and, as in protandric species, many individuals change with increasing age and larger size to "females" (Bauer & Holt, 1998) (see also short photo piece in National Geographic magazine, March 2000 issue in "Earth Almanac"). However, these "females" retain their male reproductive ducts and testes which

produce sperm. Time-lapse video observations show that these "females" (actually true hermaphrodites), even those carrying incubated embryos, can mate as males with and fertilize other such "females" which are ready to spawn a new brood. Observations on isolated "female" hermaphrodites show that they cannot fertilize themselves. (see Bauer, 2000). Thanks to Monique for the tip which led to finding this article on the Web. ♥

Aragonite as a Substrate

By Mark Peterson

Aragonite is the substrate of choice for the best kept reef aquariums because of it's ability to dissolve, releasing beneficial minerals into the water. Substrate, including aragonite, can create a home for beneficial bacteria, protozoa and other microbes but nothing has been found which equals the ability of a good aragonite substrate in

helping maintain proper pH, alkalinity(carbonate hardness), calcium and a few other trace element levels.

This is not to say that Aragonite substrate does it alone. Aquariums are prone to get overcrowded with detritus and algae, causing localized acidic conditions which lowers pH and alkalinity in the entire aquarium. Chronic low pH is a precursor to a crash. pH, alkalinity, and calcium in the aquarium are interrelated, one affecting the other so, to avoid a crash the hobbyist should watch these levels.

In an aquarium established over six months use of a pH/alkalinity buffer may compliment the aragonite's ability to keep the aquarium water chemistry balanced so that invertebrates and fish not only survive, but thrive. (By the way, my Tomato Clownfish are all grown up now and living happily at Adam's house and Monique's house. The parents continue to spawn every 14 days and now my

Green Chromis are spawning on the rocks and glass).

According to Rick Greenfield, owner of CaribSea, the substrate must be of a certain chemical composition. Three common minerals are commonly found in marine substrates: calcite (quartz), dolomite (Great Salt Lake sand) and aragonite. Calcite and dolomite are essentially insoluble so they are of no worth to the aquarist.

Aragonite comes from Halimeda (marine cactus algae), coral and specific mollusks, such as gastropods. Calcium is used in their living structure which, after the death of the organism, easily dissolves into seawater. Another of aragonite's advantages is it's composition of soluble strontium and magnesium.

The third advantage of aragonite, over calcite and dolomite, is it's more porous structure creating more surface area for bacteria, with all the known benefits. ♥

