

Spawning The *Paretroplus damii*

FRESHWATER AND MARINE

JULY 2005

# AQUARIUM



The Magazine Dedicated To The Tropical Fish Enthusiast

**A Tiny Killifish of Zaire:  
*Aphyosemion decorsei***



## HOW-TO

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- Mother Hubbard's Fish Medicine Cupboard
- Keeping and Breeding Discus
- Paraguay - An Unknown Paradise For Aquarists, Part 2





# AQUARIUM



The Magazine Dedicated To The Tropical Fish Enthusiast

## Features

- |     |  |  |
|-----|--|--|
| 8   | <b>A Tiny Killifish Of Zaire</b><br><i>Aphyosemion decorsei</i> Pellegrin, 1904                            | (Jaroslav Kadlec)                      |
| 38  | <b>The Haunted Aquarium Castle</b><br>Chapter 6  | (Robert Scott McKinnon)                |
| 56  | <b>Keeping A Store Of RO Water</b><br>How-To Project   | (James G. Atkins)                      |
| 60  | <b>Paraguay</b><br>An Unknown Paradise For Aquarists, Pt. 2  | (Ronny Lundkvist)                      |
| 78  | <b>Keeping And Breeding Discus:</b><br>Recollections After 30 Years  | (Tony Silva)                           |
| 94  | <b>A Reflection On Skimmers</b><br>Which One Is Right For You? Part 2                                      | (Brian Serafini)                       |
| 104 | <b>FAMA Visits The New Riverquarium</b><br>Aquarium In Albany, Georgia                                     | (Sandy Cohen)                          |
| 107 | <b>Mother Hubbard's Fish Medicine Cupboard</b><br>Home Remedies  | (Mark E. Evans)                        |
| 122 | <b>The Marine Aquarium Hobby Helps</b><br>Build Coral Reefs<br>A Close-Up Look At The Reef Ball Foundation | (John C. Walch)                        |
| 130 | <b>Spawning the <i>Paretroplus damii</i></b><br>A Well-Documented Spawn Report<br>On A Magnificent Species | (G.J. Reclus, D. Tourle, & S. Guinane) |
| 146 | <b>Book Review</b><br>"Focus On Freshwater Aquarium Fish"  | (Jeffrey C. Howe)                      |



Page 8



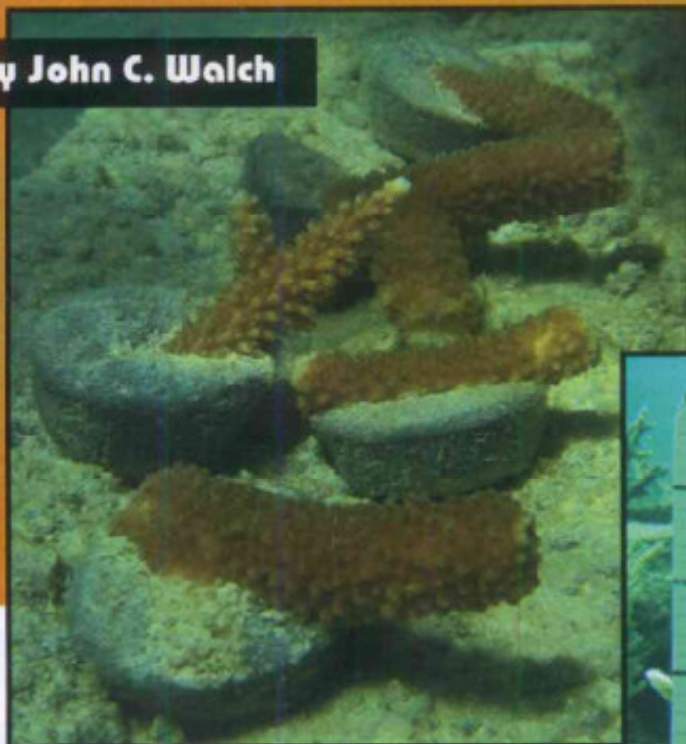
Page 60



Page 130



By John C. Walch

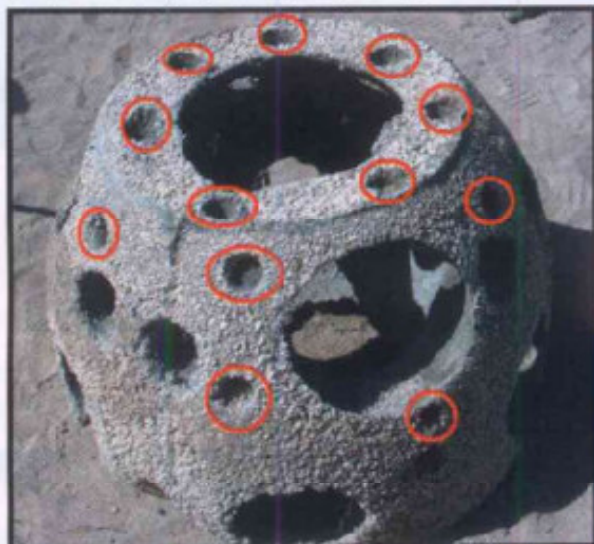


*Acropora coral plugs ready for planting.*

# The Marine Aquarium Hobby Helps Build Coral Reefs



*This impressive Staghorn (*Acropora cervicornis*) colony started as a 2 inch coral fragment two years ago. The fragment was molded into a coral plug and transplanted on one of the Reef Balls that form the artificial reef/snorkel trail at PortoMari beach on the Curacao Island.*



*Reef Ball with coral plug receptacles circled in red.*

#### ABOUT THE AUTHOR

John C. Walch has been involved in the aquarium trade since 1986. He was the co-founder of C-Quest Marine Fish Hatchery in Puerto Rico. The author is currently the Owner of Ocean Worlds Consulting, which helped develop the coral propagation methods and technology used in the Reef Ball Foundation projects. Previous articles by the author have been published in issues of *SeaScope*, *FAMA* and other trade publications. The author has also spoken at MACNA's and other Marine Conferences. John Walch serves on the Board of Directors of the Reef Ball Foundation and as the co-team leader of the Reef Ball Foundation Coral Team. He can be reached at: [Johnwalch@aol.com](mailto:Johnwalch@aol.com).

With a pair of needle nose pliers firmly gripped in my right hand, I set my jaw and squinted my eyes. Beads of perspiration pierced the skin on my forehead and upper lip. Excitement and fear warred within me. Gently cradled

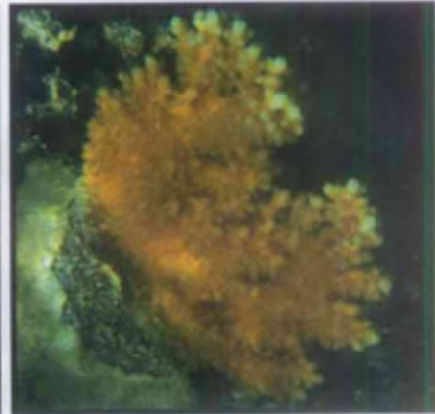




in my left hand just below the surface of the warm saltwater was the brave coral colony. The fear of who will feel the pain more, the coral or me was winning the battle within my mind.

The year was 1994 when I first experienced the adrenaline rush of fragmenting a coral. This asexual method of coral propagation has now become commonplace technology to "hands-on aquarists." Almost every reef aquarium in the USA is now aquascaped with cultured hard and soft corals — an accomplishment the marine aquarium hobby should be proud of!

After two years of honing the knowledge I first obtained at The Southwest Marine Conference in Scottsdale, AZ, I began to share this technology with the local collectors in



*Biodiversity of transplanted species enhanced habitat.*

the Solomon Islands and other Pacific Islands. It was in American Samoa where the union of two technologies was consummated, coral propagation and artificial reef building.

hollow marine friendly cement Reef Ball modules provided habitat for juvenile fish while the pH balanced rough exterior surface was favorable for coral larvae to settle on. Over time

Thanks to the efforts of an avid coral reef conservationist, Mr. Michael King and the Coalition of Reef Lovers (CORL), I met Mr. Todd Barber, the founder and CEO of The Reef Ball Foundation. The Foundation is a 501(c) 3 publicly supported non-profit international environmental NGO that developed unique scientifically designed artificial reef structures. These modules were the ideal candidates for coral propagation. The

the Reef Ball modules become encrusted with corals, algae, sponges, and most other reef life.

The key word is "over time" and it did not take Mr. Barber and myself long to see how we could greatly increase the natural reef building process by combining the asexual coral transplanting techniques I learned as a marine aquarist. Slight modifications were made to the Reef Ball mold to accommodate a coral "plug" for easy coral transplants.

While each species of coral requires slightly different propagation techniques for optimal success, the end results are the same, ready to transplant coral plugs. The coral plugs fit quickly and without much effort into the multiple coral plug receptacles now cast into each Reef Ball module.

The first large scale coral transplant/Reef Ball project took place in 2001 on the Caribbean Island of Curacao. Approximately 200 Reef Ball modules were deployed in small groupings to replicate the shallow water coral formations that were destroyed by Hurricane Lenny. Only imperiled corals that were recovered



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from the Hurricane damage were fragmented into pieces no larger than a 2-inch segment.

The largest coral transplanted artificial reef to date came about when the developer of Maiden Island, Antigua, applied for a permit to install an armor stone breakwater. The Antigua Department of Fisheries had concerns that this conventional method would critically impact the threatened Caribbean conch (*Strombus gigas*) seagrass bed habitat. An alternative Reef Ball artificial reef structure with adaptations designed to preserve conch habitat was suggested and approved.

The original fringing reef on the windward side of Maiden Island was damaged when Hurricane Luis collided with Antigua eight years ago. Using advanced surveying techniques 1,200 Reef Ball modules were deployed from a barge to help restore the reef as well as form a breakwater to protect the exposed sandy beach from erosion. The Reef Ball modules were placed with space between them to create corridors for the seabed inhabitants. Eight different sizes and over 100 different design styles of Reef Ball modules were incorporated into this project to more closely mimic a natural reef.

Thirty different species of imperiled hard and soft corals including 3,000 free living rose corals, and literally tons of Brain corals, Gorgonian soft corals, Elk Horn coral, etc., were rescued from dredge operations surrounding Maiden Island.

Several species of these corals were fragmented into smaller segments (replicating natural asexual coral reproduction) including threatened Sea Fans (*Gorgonia* spp.), Elkhorn coral (*Acropora palmata*), Staghorn coral (*A. cervicornis*), as well as the less common Fused Staghorn (*A. prolifera-robusta*). Other fragmented species included Finger corals (*Porites porites* and *P. devaricata*), Pillar coral (*Dendrogyra cylindricus*), Diffuse Ivory Tree coral (*Oculina diffusa*), and Yellow Pencil coral (*Madracis mirabilis*), to mention a few.

The coral plugs fit quickly and without much effort into the multiple coral plug receptacles cast into each Reef Ball module. Any aquarist who

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has experimented with asexual coral propagation techniques on a small scale knows it can be tedious and time consuming. The innovative coral plug/adaptor design feature developed by the Reef Ball Foundation greatly increases the efficiency of transplanting live coral fragments.

Verification of effectiveness of this applied technology is seen in this project, wherein over 5,000 coral colonies were propagated and transplanted in only fourteen days by the mostly volunteer Reef Ball Foundation workforce of 15 people. The Reef Ball Foundation uses volunteers to perform projects that meet their mission statement's goals of helping to restore our World's aquatic ecosystems.

In addition to the thousands of coral plugs, post-hurricane stabilization included 4.5 tons of unstable live rocks that were relocated and secured to the Reef Ball modules so that they would not damage the coral reef in the event of a future hurricane visit. The Reef Ball modules were also aquascaped and planted with coral species that do not lend themselves well to fragmentation (i.e., *Diploria* sp., *Colpophyllia* sp. and *Meandrina* sp.) commonly referred to