# jewels from the sea

by Kathi Barrington with Megan Davis

In their natural form conch pearls are amongst the rarest in the world. One in 10,000 conch produces a pearl, but only one in a million animals form a gem-quality pearl. To put it another way, the overall pearl market is measured in tons, while the conch pearl harvest is weighed in pounds, according to an article in the Palm Beach Post.

For more than 25 years researchers have attempted to increase the yields of these rare gems by seeding conch, as has been done successfully with oyster pearls. The male or female of any conch species can produce pearls but the Queen conch *(Strombus gigas)* was chosen because of the colors of their pearls. These enchanting gems come in a palette of colors and combinations from pure white to beguiling beige, dramatic red, soft yellow, and every shade of pink from salmon deepest rose.

However it is not simply their extraordinary colors which excite internationally renowned designers and gemologists. Conch pearls are formed by concentric layers of fibrous crystals; a 'flame structure', which creates chatoyancy. Chatoyance is an optical





reflecting effect seen in certain gemstones. They shimmer like the sheen off a spool of silk.

The problem with conch was its sensitivity to traditional seeding techniques and the difficulty of reaching the pearl forming parts of the animal, tucked deep in its large spiral shell, without endangering its life.

Two marine biologists at the Harbor Branch Oceanographic Institute at Florida Atlantic University, one of them a former long-time resident of Providenciales, have, for the first time, consistently cultivated queen conch pearls. Perhaps the most

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significant outcome of their research is that their technique does not harm the animal. Dr. Megan Davis, who helped found the Caicos Conch Farm at Leeward Going Through, Provo, said that 100 percent of the queen conch survived the seeding and the harvesting of pearls. That ensures the queen's reign, and she can produce yet another gem - which makes culturing more efficient and environmentally sustainable for commercial application.

The conch's survival is critical because most wild conch populations have been depleted to the extent that they are now considered a commercially threatened species in Florida and much of the Caribbean.

Co-researcher Dr. Héctor Acosta-Salmón was invited by Davis to participate in the conch pearl culture project because of his extensive knowledge of, and

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experience with pearl oysters. Davis knew conch, from more than thirty years of field and lab work with the giant mollusks, at the Caicos Conch Farm and at the Fort Pierce, Florida facility where she has run various departments for the past 13 years. Dr. Davis is currently the Associate Executive Director of Harbor Branch and also the Director of the Aquaculture and Stock Enhancement program at Harbor Branch.

Together the co-inventors have produced more than 200 cultured pearls. Prior to their breakthrough, no high-quality queen conch pearls had ever been cultured.

HBOI has been working with the Gemological Institute of America (GIA) to conduct lab tests on the queen conch cultured pearls.

Like diamonds, conch pearls are measured in carats. Natural pearls usually weigh less than three carats. Because they are so rare, finding natural conch pearls that match in size or color is extremely time consuming, difficult and expensive.

This new, proprietary technique allows the scientists to control the size of the cultured pearl. Tom Moses, senior vice president of the GIA Laboratory and Research said "Several of the pearls we examined are truly top-quality gems. Identification criteria are being developed here to separate queen conch cultured pearls from their natural counterparts."

The impact on the jewelry industry is predicted by many to be similar to that of the introduction of cultured oyster pearls, i.e.: a cultured pearl would sell for about one third of the price of a natural pearl. With conch pearls, that translates to cultured pearls going for $500 to $1,000 a carat.

Davis and investors are starting up a commercial company, Rose Pearl, LLC, with the goal of producing cultured pearls for prominent jewelers like Tiffany. Some time in the not-too-distant future, you may be able to pick up a treasure not only fit for a queen but created by one, with a little help from Davis and her team.

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