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PROVIDENCIALES, Turks & Caicos Islands -- Chuck Hesse doesn't look like a conch farmer. He wears khaki shorts and walks barefoot around his ranch on the eastern tip of Providenciales, one of 40 islands between the Bahamas and Haiti that make up Turks & Caicos. His long gray beard recalls the Grateful Dead.

Hesse does not live within a shell.

The effervescent marine biologist attended the U.S. Naval Academy, where he was a classmate of football great Roger Staubach. Hesse became a nuclear submarine officer and earned a master's degree in biology. And now he is founder and CEO of the world's first conch farm. The inventory at the Caicos Conch Farm numbers 5 million, and Hesse has become a legend in conch mariculture.

The farm is owned by the shareholder company Trade Wind Industries Ltd. (TWI) and is the only one of its kind in the world. Their goal is to market 1 million conchs a year.

The tender, pan-seared conch with zucchini caviar at the Biltmore Hotel's Palme d'Or in Coral Gables comes from the Caicos Conch Farm. The famed Dominique Macquet of Dominique's in New Orleans recently invited the chef from the Barefoot Cafe on Providenciales to spend three weeks in his French Quarter restaurant so Macquet could learn about conch.

Macquet uses farm-raised conch in his conch cerviche. That's diced conch with roasted tomatillos, scotch bonnet peppers and lime juice. The mixture is marinated and served over housemade lemon grass crackers.

The farm ships its conch live and fresh only to C Farms in Miami, Fla., which also distributes farmed white water clams. Key West, Fla., is known as "The Conch Republic," but conch hasn't been commercially harvested there since 1975, and it has been illegal to harvest wild conch there since 1985. Influenced by Hesse's work, last month a "Conch Baby Farm" opened behind the Conch Republic Seafood Co. restaurant, 631 Greene St. in Key West.

Conch is a warm-water mollusk that uses a big "foot" to crawl across the ocean floor. Their slow movement makes them easy to lasso. The foot is the part of the conch that is eaten after the body is shucked from the shell and the snout, eye stalks and pink shell cover are discarded. The sweet-flavored conch meat has the highest protein content (almost no fat) of all shellfish, higher than hamburger (20 percent fat) and almost as high as chicken.

"And here's the punch line," Hesse says with a soft smile. "All of this comes from an

animal that eats grass. The dolphin, snapper, the lobster are carnivores. When was the last time you ate a lion? Or an American eagle? We don't. But when we go fishing, we only eat carnivores. You realize it can't last long. And we have this animal who eats grass and should truly become the 'chicken of the sea.' "

High-end chefs are using conch as an alternative to fresh shrimp, abalone or escargot. Hesse says, "Through the help of many upper-end chefs, we've learned the secret for conch is not to cook it. Acclaimed Japanese chef Nobu Matsuhisa barely cooks it. We serve his restaurant Nobu at the Shore Club, co-owned by Robert De Niro in South Beach. Conch is a good protein, but has a very small awareness. A lot of chefs like the product, but it hasn't proven easy. Other than the chefs associated with us, there's nobody in the United States that has seen a live conch."

Hesse, 61, and his ex-wife Kathy Orr landed in tiny Turks & Caicos by accident. (The British Overseas Territory takes its name from the native Turks Head cactus, which looks like a red fez, and the Spanish word (cayos) for small islands.)

"In December 1974, we left Connecticut to sail around the world in the wooden boat that is going back to nature out here," says Hesse, a native of Manassas, Va. "We got as far as here. That's not very far, when you're trying to go around the world. I didn't even know the Turks and Caicos islands existed. My wife said, 'You may have been a naval officer. You may have gone to the Naval Academy. But you're hopelessly seasick on this little sailboat.' She wanted to study queen conchs in the U.S. Virgin Islands."

But Hesse talked her into remaining in the Turks & Caicos.

He reminded her the water was 60 feet deep around the Virgin Islands, which means divers cannot spend more than an hour a day at conch level without decompression problems. Orr went on to publish children's books based upon her experiences in the Turks & Caicos: *Shelly the Conch* and *LeRoy the Lobster*, both available through MacMillan Publishers.

"Here, it's 15 feet of water where they harvest conch," Hesse says. "You can stay all day. I became a dive instructor. And the two of us essentially lived underwater for a year, like Jane Goodall did with apes. Every other day we spent three to five hours underwater observing movement, migration, growth rate, sexual behavior -- anything a conch did."

The Caicos Conch Farm is open to the public.

It is the biggest (and only) tourist attraction on Providenciales, pop. 20,000. The island is so small, it still doesn't have a traffic light. But every year nearly 100,000 people tour the conch farm.

A staff of 16 operate a year-round conch egg farm, hatchery, post larvae growout buildings, onshore nursery ponds, a fresh product processing facility and a 60-acre fenced subsea maturation pasture (adjacent to the farm).

The pasture is home for the conchs for the 2 1/2 years they grow from 8 cm (about 3 inches) to adulthood. In the wild, only one small conch out of 500,000 eggs in a single mass might grow to adulthood. About 25 percent of conchs survive on the farm, according to algae manager Georgia Williams, a native of South Caicos.

Conch season runs from March to October, when females and males mate and lay eggs in "boudoirs" where environmental conditions are perfect to induce conch sex. Farm divers go out several times a week between March and September to harvest 20 egg masses at a time. Hesse says, "I'll never forget the first year 1984 with our general meeting with the shareholders. I told them I raised 300,000 conch and got 3 percent back. These guys looked at their wallets and said, 'We invested for you to throw 293,000 animals away? Where did they go?' " Hesse couldn't answer their question.

"What you forget in your quest to make it simple is that predators come in through the mesh as babies," he says. "And they grow up. So you have your fox inside the henhouse. The ultimate solution was to do it on land, where none of the predators can get to." Conch predators include lobsters, stingrays, crabs, octopuses, sharks and turtles.

So now, once a conch has reached 8 cm in shell length, it is moved to 70-foot-diameter circular pens in the shallows adjacent to the farm ponds. These pens have 2-inch-square plastic coated wire mesh that keep out major predators.

"During this time they feed off of naturally growing algae as well as supplemental bacteria-free conch feed three times a week," Hesse says. "Remember, we grow underwater sheep and cows."

A mature conch can be recognized when it has grown its pink-lipped spiral shell. Divers gather the mature conchs and place them in plastic buckets. They are taken to a processing facility where they are shucked, skinned and packed as fresh meat, while the live ones are purged for 24 hours before being packed in insulated containers. All products are shipped via Federal Express.

At the end of a farm tour, visitors get a close look at Sally and Jerry, the "World Famous Trained Conchs." A conch is a conch, of course, of course, so they aren't trained to do much. Williams picks up Sally, 8. Her "foot" emerged from her shell. Her eyes are in her "foot."

"It is like an elephant trunk," Williams says. "And it can stretch out long like an elephant trunk. The claw at the end of the foot protects them. The long string that goes down to the end of her foot -- that shows that she is a female."

Williams then picks up Jerry, 6.

"Jerry has a penis that is located above the eyes," Williams says. "If a crab or predator bites it off, he grows a new one back."

Lucky Jerry.

"When Sally and Jerry mate, this penis can stretch up to a foot long," Williams says. "You cannot tell the difference between a male and female conch by just looking at the shell." Ah, this reminds me of my worst nights at the Matchbox tavern back in Chicago.

Conch is a commercially endangered species.

"The closest commercially endangered species is codfish," Hesse says. "And it is not yet listed. Conch was listed in 1992. This farm is actually a conservation project. If you don't know how to do this, you can't restore the stock." The farm commits 2.5 percent of its net profits to the nonprofit conservation organization PRIDE Protection of Reefs and Islands From Degradation and Exploitation, which Hesse founded.

CITES the Convention on International Trade in Endangered Species, based in Geneva, Switzerland, controls trade of endangered species. On Sept. 29, the organization mandated that importing countries were no longer to receive products from Dominican Republic, Haiti or Honduras.

Suddenly, new life was given to the Caicos Conch Farm.

"That cut out 85 percent of the conch coming into the United States," Hesse explains. "They cut it out because conch coming from the Dominican Republic, Haiti and Honduras, landing in America, had been thieved from the Pedro Bank, which belonged to Jamaica."

The Pedro Bank is a plateau about the size of New Jersey, 100 miles south of Jamaica. The water is about 60 feet deep on the Pedro Bank. "Jamaica started to harvest it," Hesse said. "And along the way the Jamaican government woke up and said, 'Wow, we ought to manage this.' They closed it for two years to figure out how to manage it. The people who were harvesting it under Jamaican license were Dominican and Honduran divers. They weren't going to stop making a living, but they couldn't land in Jamaica anymore. So they started bringing it to the Dominican Republic and Honduras."

The international trade convention wondered how Dominicans suddenly could find such a great source of conch in the modest waters around the island. "In the meantime, the Jamaican government decided they didn't want any of their conch to

go to Miami," he said. "They preferred it went to the French islands of Guadeloupe and Martinique, where they would get a higher price. So 85 percent of what was coming into Miami was cut off.

"So this little country called the Turks and Caicos -- which historically has been about 10 percent of what was coming in -- is now the number one source of conch for America. And that 85 percent will never come back, because when Jamaica opens up again, it goes to the French islands." That is why the commercial conch industry is returning to the Keys. Local importers and restaurateurs want to keep prices down.

Hesse says, "Last night I got a call from the Outback Steakhouse people. They have this concept with Jimmy Buffett called 'Cheeseburger in Paradise.' They are going to try to figure out how to integrate our product in their price structure.

"People should look at what's here and understand it has an environmental consciousness beyond what anybody has realized," he said. "And help us multiply."