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should upgrade computer systems during the off-season so they have time to figure out any quirks in systems before their use becomes critical to golf course conditioning.

"It will allow you to learn the whole compatibility of the system before the pressure is on," Traficano says. "You can make subtle changes to the program and fine tune it."

Freund says that once the new sys-

Superintendents should check pumps daily with logging devices that will ensure proper efficiency.

tem is installed, superintendents should check the heads monthly and repair as needed.

He adds that they should also check pumps daily through logging devices to ensure the proper pump efficiencies are being maintained.

Fisher is looking forward to seeing

the full benefits of his new system in 2005. Until then, he's enjoying the subtle changes that have resulted from the first phase of his project.

"Our initial work has cut the water window to between four and five hours," Fisher says. "I can't wait until the rest of the upgrade comes on line." ■



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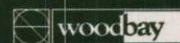
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2025

BY GEOFF SHACKELFORD

The first time I visited the world renowned Shar'n Love, the award-winning psychic had never heard of Tiger Woods. Shar'n is a slightly strange redhead who uses tarot cards, handwriting and numerology to predict the future — with apparently little idea of what's going on in the present.

Claiming to prefer the fresh air to an indoor facility, Shar'n sets up about 100 yards from the infamous basketball courts on the bizarre Venice Beach, Calif., boardwalk. I sat down for our first session hoping to find out what was up with the world of golf, circa 2025. Since she knew nothing about the game, the session led to few clues. For our second meeting, I brought Shar'n copies of *Golfdom* and *GolfDigest* in hopes of shaking loose a few prophetic thoughts.

While I watched the strange folks of Venice

cruise the boardwalk, Shar'n massaged a recent issue of *Golfdom* and closed her eyes.

"Is there a designer of some kind named Reese?" she asked.

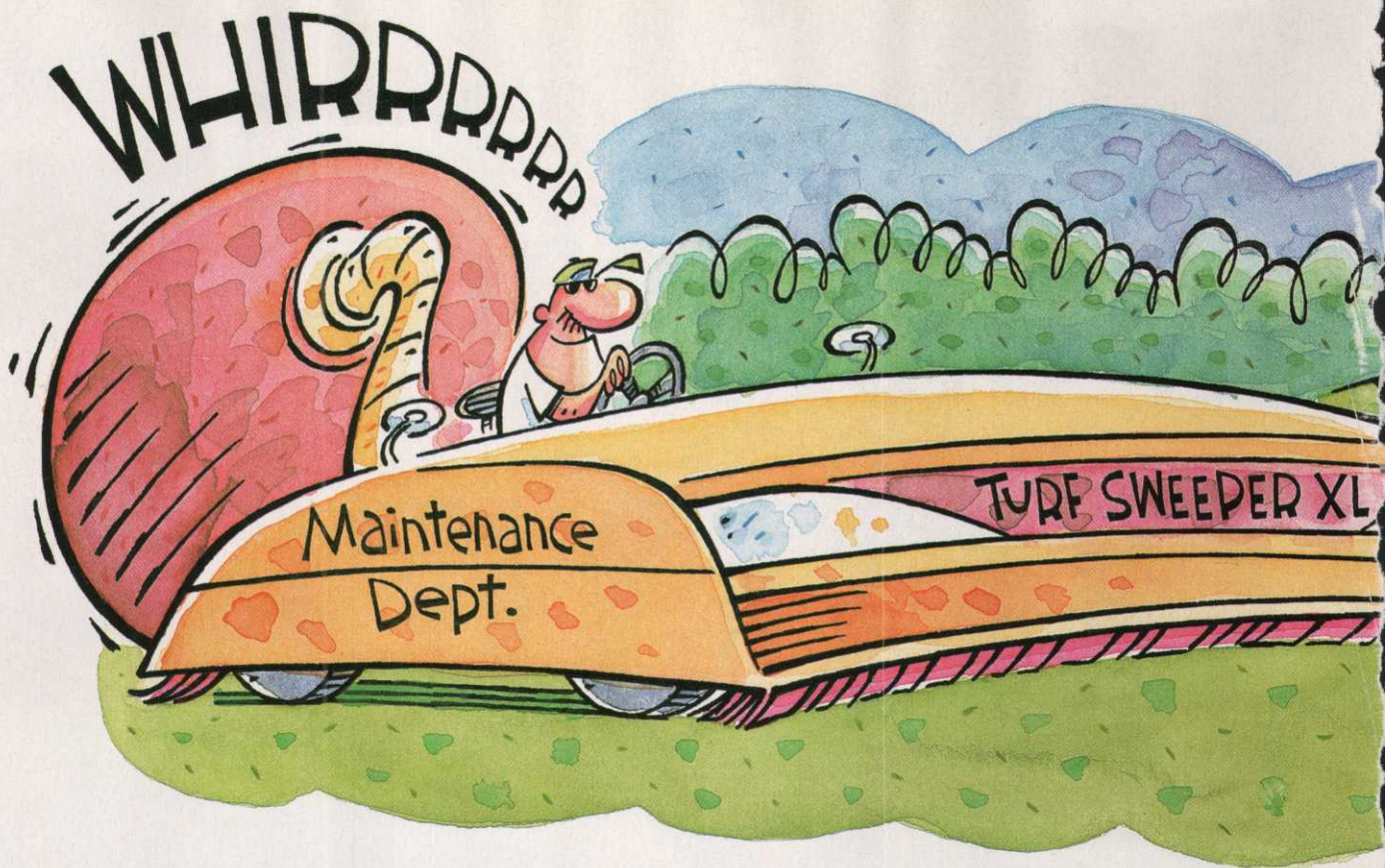
I informed her there was a savvy golf course architect named Rees Jones.

"Yes, that's her. There are championships being played at her courses, Rees Run, Rees Creek, no, this one is at Rees Valley," Shar'n said. "I also see a photo of you; it's your column. You have very little hair. Many wrinkles. You are complaining that, uh, the Federal Express U.S. Open should not be played on the Rees Jones Trail, particularly since all of the courses use, what is it here, repurposed turf. Do you understand?"

Most of it. But I asked her if there was anything she could tell me about repurposed turf.

Shar'n held up a hand — her nice way of

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telling me to shut up. While she searched for more visions, I contemplated getting my name on a grain of rice or perhaps an L.A. Lakers Henna tattoo, two options on the Venice Beach vendor scene.

"I see an advertisement," Shar'n said. "It says that *Golfdom* is proud to show off the new line of Hoover repurposed turf sweepers."

"Do you mean the Hoover that manufacturers vacuum cleaners?" I asked.

Her eyes closed, she nodded yes as she continued to shuffle pages.

"Hoover has repurposed turf sweepers in three sizes, each with different capabilities, starting in the low \$400,000 range," Shar'n said. "One features a 40-yard wide blade that can sweep 18 holes of repurposed turf in less than 40 minutes. It promises to only lift three carpet fibers per sweeping. Its baskets process the waste and lifted fibers into new pieces of repurposed turf for your nursery. Do you understand?"

Astroturf, of course. It's inevitable. So many courses already look synthetic, why not go all the way?

"Do you have a date on this, Shar'n?" I asked.

"January 2025. I see another article with your photograph. You are complaining about the letters you received. In the previous month's column, you explained how a thing called the bunker made golf courses more interesting. Do you understand?"

"Yep, I'm still moaning about the death of the bunker," I mumbled.

"It seems the bunker is eliminated when artificial turf is installed," Shar'n said, reading my column. "They flattened the bunkers out when installing the repurposed turf and took the sand away. It was too dangerous for the people playing GolfCarPolo. Do you understand?"

"Uh, no, but please continue," I said.

"Apparently, GolfCarPolo is quite a popular way to play golf," she said. "There is a picture I see. You play without ever stepping out of a cart. They can play in under five hours that way. Cars have special seats that turn and allow the golfer to swing, designed to prevent exercise or getting out of the vehicle."

"What else?" I asked.

"You say that the idea of exploding sand from real bunkers was too messy and too much trouble to sweep up," she said. "Golfers did not like sweeping the sand back into the bunkers. So they filled in the bunkers. Do you understand?"

"I guess sweeping replaced raking as one of those things that was a little too much to ask of golfers," I said. "Too much exercise, eh?"

Shar'n massaged the *Golfdom* again and informed me that exercise was no longer "cool" in 2025. She said there were ads in *Golfdom* for weight-loss drugs, stress-reduction pills and different forms of heart-strengthening medication that were all created to replace exercise. The drugs helped fuel the biotechnology economy. By eliminating exercise time, the drugs allow people more time to shop.

"I think I've heard enough," I said. "How about we go to one of the other magazines?"

Shar'n took the *Golf Digest* and started flipping pages with her left hand while rubbing her tarot cards with her right hand.

"I see a listing of courses," she said.



"The magazine calls it its year-end summary of the, uh, I can almost see the text. It's the summation of the, uh, the real-time Internet ranking that readers vote on — America's Greatest 1,000 Courses. The list is updated hourly, but I see here that the magazine is printing the year-end tally along with reader comments. Do you understand?"

"Unfortunately I do," I said. "Can you tell me what some of the criteria are that they use to judge the courses?" I wondered how many categories had been added over the years.

"I see more than 40 categories listed as criteria and just as many for bonus points," Shar'n replied.

"Just give me the highlights for bonus points," I said. "I'd like to know how the editors finagled the rankings in 2025."

"Hmmm ... bonus points. Ah yes, I see many items listed," she said. "Smoke-free courses get five bonus points. Courses with grass and trees get bonus points for

tradition. Courses that let you drive your own golf car instead of the automated driving system get individual-rights points. Course designs that guide players without forcing them to think get points on a weighted scale determined by the editors. And there are bonus points for designs that install the new underground lower-lumbar preservation systems."

"Huh?"

"It says these special systems take your ball after it goes into the cup, replaces it if damaged or worn, charges your Visa for a new ball and then sends either ball to the next tee to be teed up when you arrive. Do you understand?"

"No. And I don't want to. Can you see which course is ranked No. 1?" I asked.

Shar'n let out a sigh. She was just getting a good look at the bonus points page, when her vision could see the Top 1,000 list.

"Pine Valley GC in New Jersey," she

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said. "Cypress Point is No. 2 and Pebble Beach comes in third."

"Nice to see some things never change," I said. "Anything else you can tell me?"

"There is a short article here about, uh, The Men's Only GC at Augusta National. Does that sound right? The text says the fourth-ranked course and former home to The Masters received special exempt bonus points from the editors. They installed a new Hootie Johnson Memorial Waterfall on the 18th hole. Apparently, they also installed a similar memorial at the new All-New Augusta National GC. That is where they moved The Masters five years ago. The new fountain sends water 100 feet into the air. The editors said the course earned special bonus points because this is what Bobby Jones would have wanted."

"Can you see any of the yardages next to the courses?" I asked.

"Do you know of a Tiger Woods? He is listed as the designer of the all-new Augusta National along with a Hootie Johnson."

"Hmm" Shar'n opened her eyes. She was distracted by the guy who strolls Venice Beach with his electric guitar. He's on roller skates and wraps himself in a white turban and wears shin guards,

playing Jimmy Hendrix riffs for tips. Once he and his guitar passed, Shar'n regains her concentration.

"Augusta National is 8,295 yards and a par 68," she said. "Pebble Beach is par 68 also. The architect of Pebble Beach is listed as Jack Nicklaus."

"Really? Nice to see revisionist history isn't just a present-day fad," I said.

"Do you know of a Tiger Woods?" she asked. "He is listed as the designer of the all-new Augusta National along with a Hootie Johnson."

"How touching," I answered. "What else can you see about Tiger?"

Shar'n perused the pages of a recent *Golf Digest* with her eyes shut. As she flipped the pages, I noticed Tiger was on about every one. Five minutes later she finally came up with something.

"There seems to be an organization named after him," she said. "It's a tour business. Does that sound possible? Cruise ships, perhaps?"



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"No, it would be a golf tournament circuit," I said. "Nothing to do with tourism. Well, not literally anyway."

"Tour, tour, I can't see, wait ... it's Tour Tiger. It's played by major championship winners over 30 who are tired of playing against the 450-yard driving 15-year-olds. It seems there is a PGA Tour for players 30 and under. While the Tour Tiger plays a foursome wherever it goes, first prize is \$10 million each week. Tiger, someone named Ernie, another one named Sergio and a rather ashen young man who's not particularly charismatic. I can't get his name ...

"David Duval?" I asked.

Shar'n didn't respond.

My time was almost up. I placed another copy of *Golfdom* in front of her. Eyes shut, her massaging commenced.

"What is the NGF?" she finally asked.

"The National Golf Foundation," I said.

She said: "The organization states that

a recent survey says that golfers want more affordable courses. They say that growth in the golf business should be in the number of players added to the game, not in the number of yards added to courses. They say the game needs more courses played on grass. They want to return golf to natural settings. Do you understand?"

"Yes. What else?"

"They are saying that most of the 10 million golfers left in the game and the five million a year giving up the game state in a poll that they would rather play in a natural setting in around three to four hours, instead of the normal eight-hour round. And they say that since the cost of installing repurposed turf and simulated trees is the same as 25 years of maintaining grass and bunkers, that golfers would prefer to play on real grass and even walk sometimes. Do you understand?"

"Oh, it all makes perfect sense," I said.

Shar'n looked at her watch. "Time's up."

She had a line of customers ready to take the wobbly fold-up beach chair and hear about their future. I paid her \$20, took my magazines and strolled the boardwalk.

That was golf in 2025. Artificial turf courses. Lazy fools playing golf from the seat of a golf car. Tiger has his own Tour, and there are 15-year-olds on the PGA Tour. There are two Augusta Nationals, and 8,000-yard layouts take eight hours to play. And real-time Internet rankings reward smoke-free courses and course with cups that steal your golf balls and add more debt to your Visas.

Maybe Venice Beach wasn't looking so strange, after all. ■

Shackelford, Golfdom's contributing editor, can be reached at geoffshac@aol.com. But his e-mail address may change in 2025.

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Pass the Salt

Florida courses discover that reverse osmosis plants are fine for irrigation – and economical, too

The turf at Jupiter Island Club is always well-irrigated, thanks to the course's reverse-osmosis system.

BY LARRY AYLWARD, EDITOR

The summer of 1996 in Hobe Sound, Fla., was fiercely hot and desert-like dry. It was scorching enough that the city's utility company cut off the water supply to its nonemergency-use customers, including The Jupiter Island Club. Rob Kloska, superintendent of the Jupiter Island Club in Hobe Sound, was left without adequate irrigation. While Kloska wasn't happy with the ruling, he understood. And deep down, Kloska even felt a hint of bliss. He knew the course needed to make a change regarding its irrigation supply, and he had to sell members on it.

Kloska also knew what he wanted for his new irrigation source. "[The utility company's] decision was a great bullet in the gun for reverse osmosis," he says.

Reverse osmosis is the process of extracting salt and other minerals from brackish salt water and converting it to irrigation-quality water. Reverse osmosis plants are popular in the Middle East, where fresh water is scarce. Some critics say reverse osmosis plants are too expensive to build and operate in the coastal United States. Environmentalists voice concerns about how to dispose of the salty brine extracted during the conversion process.

The Jupiter Island Club is a high-end golf course located on a barrier island. The Atlantic Ocean borders the course to the east, and the Intracoastal Waterway is to the west. The course's location leaves it with few options for its irrigation source, Kloska says.

"We looked at piping in effluent water, but the one entity that creates wastewater is too far away," Kloska says. "The cost to get the pipe from there to here is well over the amount it would cost to build a reverse osmosis plant."

Drawing water from a shallow well also isn't feasible because the island is only about a half-mile wide and doesn't hold a lot of fresh water in the ground, Kloska notes.

That leaves the city's potable water, which the course was using. But it was expensive and getting more costly. The course paid about \$1.87 per 1,000 gallons of water in 1996. If there was a water restriction, like in the summer of '96, it was a good chance the course would be left high and dry if the city decided to scale back consumption. If that happened, Kloska would have to improvise when it came to irrigation. He also wouldn't have water to use for renovation or construction projects.

A field trip

Kloska was hired at Jupiter Island in June 1995. In February 1996, the members purchased the club from its private owner.

Problem

Superintendent Rob Kloska needed to find an alternative irrigation source for the Jupiter Island Club in Hobe Sound, Fla., mainly for two reasons – to offset the high price of potable water and to be free from local water restrictions.

Solution

Build a reverse-osmosis plant to manufacture the course's own water for irrigation.

Around that time, Kloska met with the few members tabbed to operate the club. They talked about a five-year plan for equipment replacement, rebuilding the greens and updating the irrigation system. They also talked briefly about a reverse osmosis plant as the course's source for irrigation water.

In the summer of 1996, Kloska took a field trip to The Everglades Club located in nearby Palm Beach, Fla., which had recently installed a reverse osmosis plant. Like Jupiter Island, The Everglades Club purchased potable water from the city and paid more for it than Jupiter Island. "Our bills were up in the \$250,000 range," says Peter Brooks, the course's certified superintendent.

After Brooks gave Kloska a tour of the plant and talked about its benefits, Kloska was sold. "I saw it and said, 'This is what we need at Jupiter Island,'" Kloska says.

Kloska knew the dirt on desalinization was that it was too expensive to use on a golf course. A plant costs around \$1 million and can also be expensive to operate because it uses electricity to clean the water. But the more Kloska studied the feasibility of installing a system at his course, the more he realized the expense factor was overrated, at least for Jupiter Island.

In early 1997, Jupiter Island hired an outside firm to conduct a study to determine if a reverse osmosis plant was feasible for the course and how long it would take to pay for itself.

"The members of The Everglades Club are similar to the members of our club," Kloska says. "If something doesn't make financial sense, they won't commit to it."

The study revealed a plant was feasible, and Jupiter Island's members agreed with Kloska to purchase a reverse-osmosis system in early 1998 from Waterlink, a Columbus, Ohio-based provider of integrated water and air purification solutions for industrial and municipal customers. A little more than four years later, the system paid for itself, Kloska says.

"Ultimately, Mother Nature decides how fast you must pay off a reverse-osmosis system," Kloska says. "If She decides it's going to be dry, your payoff is going to be shorter. If She decides it's going to be wet, your payoff will be longer."

The price of municipal water also plays a role. "Every time the price of water gets



raised, your payoff is shortened," Kloska adds, noting the price of water increased to about \$2.25 per 1,000 gallons by the time construction of the course's plant was completed.

The course's reverse-osmosis plant consists of a 1,700-foot well that supplies the brackish water; equipment and machinery; and a building. The system draws about 520,000 gallons of water a day from the well and produces 400,000 gallons a day for irrigation use. The course uses an average of 270,000 gallons a day during the year. The course also

The Jupiter Island Club's reverse-osmosis system draws about 520,000 gallons of water a day from a well, and the course uses an average of 400,000 gallons a day.

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“The No. 1 thing it gives the course is immunity to all water restrictions.”

ROB KLOSKA,
SUPERINTENDENT,
JUPITER ISLAND CLUB

**Read another
Real-Life Solutions
on page 47**

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uses recycled water captured by drainage systems from the greens and bunkers. Kloska explains how the reverse osmosis system works:

“We’re taking the source water, which has salt in it, and we’re increasing the pressure of it and pushing it through what are called vessels. As the water passes through the vessels, the salt of the water is pushed to one part of a vessel and the clean water is pushed to the other part. Then the clean water is saved and sent in one direction, and the brine is sent in the other direction.”

Of every four gallons of water taken out of the well, three are made into water that the course uses to irrigate. The remaining gallon of brine is dumped in a gravel swale that percolates into the ground.

“The salinity of that water is similar in parts per million to the water in the Intercoastal Waterway, which is only about 200 yards from the swale,” Kloska says. “So it’s a good fit.”

What to do with the concentrated brine is an issue with reverse-osmosis plants, but not a problem, Kloska and Brooks agree. At The Everglades Club, the brine flows to a percolation pond on the west end of the golf course, where it filters safely into the ground. Brooks says brine disposal varies from course to course.

Other than brine disposal, the reverse-osmosis system has created few maintenance challenges, Kloska says. “The one negative about reverse osmosis is that it cleans the water so thoroughly that it takes all of the ions out of the water, which makes the water more corrosive than salt water,” he notes.

As a result, the course’s pump station becomes corroded much faster than it would if it was using municipal water. “It’s not that big of a deal, but it comes with the territory,” Kloska says.

Initially, Kloska was concerned about irrigating with the ionless water, but the only problem he says he’s seen is a spike in the pH level of the pond water, which ran as high as 8.5. Kloska added an acid injection system to the irrigation system and the pH level dropped. “The turf looks good,” he says.

There are standard short-term and long-term maintenance issues. For instance, filters need to be cleaned regularly, and the well’s membranes should be replaced every 10 years.

While it costs nearly \$1 million, Kloska

and Brooks say a reverse-osmosis system makes perfect economical sense for clubs like Jupiter Island, Everglades and others that use expensive potable water. “In this area, only the coastal golf courses are currently looking into [reverse osmosis] because we’re the clubs who predominantly buy potable water for irrigation purposes,” Kloska says.

Brooks says Everglades’ reverse-osmosis system produces the course’s water for only \$25,000 a year.

“This has turned out wonderfully for us,” he adds. “The water quality is superb, and the plant runs like a top.”

The expensive-to-operate issue is overrated, both superintendents agree. Kloska says it now only costs the course 78 cents to make 1,000 gallons of water by reverse osmosis, and that includes the price of electricity. If Jupiter Island were still using potable water, it would pay \$2.90 per 1,000 gallons today.

There are different types of reverse-osmosis plants. For instance, Jupiter Island’s plant is designed to run continuously for better efficiency. But Everglades’ plant is not designed to run continuously and usually operates only at night when the city’s local utility company offers cheaper rates for electricity. The plant can produce up to 35,000 gallons of water an hour. “I’m running it cheap,” Brooks says.

Kloska says he wouldn’t be surprised if the day comes when more golf courses in the Northeast and Southern California turn to reverse osmosis for irrigation purposes.

“[Golf courses] get a bad rap because people say they use too much drinking water for irrigation,” he says. “If enough people get behind such a movement, they can make a lot of noise. There may come a time when other superintendents may have to look at reverse osmosis as an alternative because they’re being threatened [with the fact that] that their potable water is going to be taken away.”

The best thing about reverse osmosis, Kloska says with a sigh of relief, is that he no longer worries about the course’s water supply being shut off.

“The No. 1 thing it gives the course is immunity to all water restrictions,” Kloska says. “Like I’ve told people many times, ‘He who has the water has the power.’” ■