This is a long but interesting, sometimes sad, sometimes hopeful article. If you want to contribute to helping the Manatees, see the end of the article. You can help now by not fertilizing your yard, which is banned during the rainy season. Consider using less, if any fertilizer otherwise. Good soil health can help produce it's own fertilizer in time. Also avoid Glyphosate as they talk about in this article. It's found in Round Up. Round Up has been shown to be carcinogenic to humans as well. Consider having less lawn and use rock gardens and areas of native plants that don't need fertilizer.

The author left out a major cause of the seagrasses being killed. The nutrients, nitrogen and phosphorus, found in fertilizers are getting into Lake Okeechobee. It comes from Big Sugar and other agriculture around the lake. It flows from entities on the north side of the lake via the Kissimmee River, into Lake O. The nutrients feed the Blue Green Algae, known as Cyanobacteria which grows best in the warm waters of the lake. By the time the rains start, the algae has formed. As the lake fills up, without all the excess water storage areas completed, less water being sent south, etc., the Army Corp of Engineers starts to discharge the contaminated water into the St Lucie and Caloosahatchee Rivers at some point. The St Lucie flows into the St Lucie Estuary and into the ocean. The seagrasses are being killed this way.

Yes, we residents contribute our share but we can stop. Septic tanks in some areas can cause problems but from what I know, they are not the main source of contamination. New construction is supposed to be on sewage lines, not septic tanks. However, biosolids from the sewage facilities being spread on land near waterways can also cause contamination.

We also need stronger laws and more monitoring of agriculture and others in our state to stop the fertilizer nutrients from getting into the lake to start with. We can write our representatives in the FL Legislature and the Martin County Board of County Commissioners.
Carol Ann

-----Original Message-----
From: Virginia Sherlock <vsherlock@lshlaw.net>
To: Virginia Sherlock <vsherlock@lshlaw.net>
Cc: Virginia Sherlock <vsherlock@lshlaw.net>
Sent: Wed, Jul 14, 2021 2:58 pm
Subject: Overdevelopment killing manatees

This is so heart-breaking. We have fought for so many years to protect seagrasses from overdevelopment and really bad projects -- like the Jensen Beach Mooring Field which is built over Johnson's seagrass and is apparently going to be enlarged, even though it is virtually unused because it is not in a good location. Heartless, greedy and just plain stupid commissioners and local government staff have steadily eroded protections and expanded development to a point where it may be too late to save so many precious resources. -- Ginny Sherlock

Starving manatees overwhelm Florida rescuers. Is there a future for the gentle marine giant?

By Jim Waymer
Florida Today, July 14, 2021

All across the state, manatees in record numbers are starving to death from a man-made famine that has choked out the seagrass — the staple of the gentle giants' diet. Island outcroppings in estuaries up and down Florida have become seacow mass graveyards as more manatees succumb to the ravages of hunger every day. The death toll was so bad that in April, the National Oceanic and Atmospheric Administration declared the die-off an Unusual Mortality Event.

Kelly Cluckey, wearing a black and blue wetsuit and black face mask, kneels beside manatee #2128 — a boney female sea cow lying motionless inside the round rehab pool at Orlando's SeaWorld. A planked floor lifts the emaciated creature above the water line. Number 2128 can't keep afloat, so she can't breathe on her own in water deeper than her torso. She's constantly sinking. Like the rest of her kind, #2128 would surely perish without human intervention, and Cluckey and the other SeaWorld staff are frantic to save her and hundreds of other suffering manatees.

This year's been an all-hands-on-deck triage for SeaWorld and Florida's other manatee rehab centers. Even if they can be saved, what future awaits Florida's most iconic species? With their food source vanishing, rescued manatees might have no safe place to go.

Those lucky enough to be found before they drown — because like #2128 they can no longer float — are brought here to SeaWorld and a handful of other rehab centers around the state where teams of rescuers and marine veterinarians work around the clock to pull them back from the brink. But even if they can be saved, what future awaits them?

Their staple diet of seagrass has become a collateral casualty of our addiction to manicured lawns and clear-cut subdivisions connected to septic tanks. The resulting spillover of fertilizers and nutrient-rich septic

waters into Florida's estuaries has smothered seagrass beds up and down the Sunshine State, leaving Florida's iconic sea cows out to pasture with nothing to eat.

By July 2, at least 841 manatees had died in Florida, surpassing the record 830 deaths set in 2013 and more than doubling the 5-year average. What's uncertain is whether this a natural cycle we're seeing or the beginnings of a man-made extinction-level event.

What is certain is that this crisis has thrust SeaWorld and Florida's four other manatee critical-care facilities into a horrible dilemma. At what cost are they saving these creatures? If they manage to nurse them back to health, what then? Do they take them back to where they found them, as is standard protocol, even though there's still likely no food there? Or maybe drop them in unfamiliar waters where there's at least some seagrass but already plenty of competition for food among local manatees? For some sea cows, would it be best to live the rest of their days in captivity?

These are the tough choices that Cluckey and dozens of rescuers statewide wrestle with daily as more sick and dying sea cows flood into their medical pools, stretching their capacity to heal to its limits.

"I'm sad. I'm mad. I'm really disgusted. But I'm also at a point that it's gotten so bad that now people are understanding," said Pat Rose, executive director of the Save the Manatee Club, a nonprofit group based in Maitland. "I'm going to stop saying 'I told you so,' and I'm going to start saying 'how can we work together to make this all better?'"

For now, #2128 is the only designation this manatee has been given. If and when she nears a full recovery, her caretakers will give her a name. Until then, they don't want to jinx her or her calf — #2129. Baby is doing much better than mom. Mother was swimming on her side and couldn't right herself when rescuers found the two earlier this year in Titusville, not far from NASA's Kennedy Space Center, where most dead manatees are floating up these days.

Before now, SeaWorld rescuers seldom recall seeing a sea cow so thin. "We always hope for the best, but we do get lots of bad cases," Cluckey said, referring to #2128, "and since there is a calf it does make it a lot harder." Waist-deep and in her wet suit, Cluckey rips apart heads of

Romaine lettuce. She then sets the stalks afloat among other leafy scraps that swirl in unison along the surface of a glistening turquoise pool as several orphaned manatees vie for their vegan meals.

These artificial healing habitats for acute care — of which SeaWorld is the largest — are where hope of renewal begins for a species starving in the wild. In these pools the orphaned learn to eat, the sick and elderly learn to hold on, and exhausted rescuers learn endurance, patience and how to cope.

"It never gets easier," said Lorri Braso, 56, SeaWorld's animal rescue operations supervisor.

Rehabs struggle coast to coast. "Some of these animals come in pretty terrible conditions," said Tiffany Burns, director of conservation research and behavior at ZooTampa, one of Florida's five acute-care facilities for manatees. "But with supportive care, they're able to get better and be released. They're an amazing species."

As with SeaWorld, at ZooTampa the rehab pools are full. By early June, they were treating 21 sea-cow patients. "Twenty-one is a lot. On average we sit somewhere near 10 to 12," Burns said. "It does get a little bit harder to balance the critical care and the medical pools."

It can get overwhelming, depressing, she and the other rehabbers say, but is rewarding, too. "With any rescue and rehab program, it can be difficult," Burns said. "But we really focus on the animals we've been able to save."

Florida's other acute-care facilities for manatees in Florida — Miami Seaquarium, Jacksonville Zoo and Homosassa Springs Wildlife State Park — also are at or near capacity. When manatees are stabilized at those facilities, they then can go to one of four secondary facilities, at the Living Seas at EPCOT in Orlando, Bishop Museum of Science and Nature in Bradenton, Cincinnati Zoo or Columbus Zoo in Ohio. However, the Parker Manatee Rehabilitation Habitat at the Bishop Museum of Science recently reopened after a hiatus for remodeling and resumed rehabilitating manatees. They received two manatees from ZooTampa — Janus and Iclyn (pronounced “ICE-linn”). Their names were given because they are getting better and were well enough to be transferred from ZooTampa's acute-care facility to the museums "second-stage" facility.

The Florida Manatee Oceanaria Reimbursement Assistance Program provides about $1.2 million per year for federally permitted facilities that rescue, rehabilitate, release and monitor manatees. The program has existed since 1991 and has been managed by the Fish and Wildlife Research Institute since 2000. The rehab facilities all weigh in when they meet as the Manatee Rescue and Rehabilitation Partnership, which works collaboratively to decide on the timing and release sites for rehabbed sea cows.

"Is there a limit? Yes. Are we turning away animals? Absolutely not," said Braso, a 30-year veteran at SeaWorld. "We all work together. If we didn't work together, we couldn't do the number of animals we've been doing."

Nonetheless, Miami Seaquarium's Animal Care Supervisor Julie Heyde expects a tough rehab road ahead, given that so many manatees are being orphaned. "Right now, with 18 under our care, we are very busy and are limited on what else we can take in," Heyde said of the manatees at Seaquarium in late May. "Many of the orphan calves are not a quick turnaround. Some could take over one year to reach over 600 pounds and be candidates for release."

But increasingly the question is where to release them? Typically recovered manatees were returned as close as possible to where they were rescued. But given so many come from areas devoid of seagrass, rescuers are worried about releasing them back into a famine. Heyde said rehabbers found one spot in north Palm Beach where there's good seagrass and there is hope that it can support released manatees. Those taken there are fitted with satellite tracking devices so biologists can see where they go.

But even the best intentions don't guarantee the best outcomes. Some manatees venture far from where seagrass grows best, for reasons biologists can't quite explain. One elderly manatee, named Chessie, released for the fourth time on May 11 had by mid June already hightailed it more than 300 miles north from his release site in West Palm Beach to Fernandina Beach. Chessie’s journeys date back to 1994 when he was rescued from Chesapeake Bay, unusually far north for a manatee. After rescue and release, the next year he swam all the way to Rhode Island before returning south to warmer waters on his own. Chessie wound up at

SeaWorld again after a Feb. 5 rescue in Riviera Beach by state wildlife officers who saw him floating on his side in distress.

SeaWorld sees that a lot.

Manatee #2128 was floating on her side when they found her and her calf in Titusville. "They're having buoyancy issues," Braso said of the now commonplace phenomenon. "We've been calling them 'side swimmers.' "

Back behind the scenes at SeaWorld, #2128 already looks dead on the planked pool lift. Ribs jut from her gritty gray hide, etched with white scars of boat-prop slashes. Watching from beside the rescue pool, Brant Gabriel, SeaWorld's animal rescue supervisor, is hopeful but realistic. He knows manatees are made of much tougher stuff than most are aware of but also knows the odds when a sea cow keeps losing weight.

"This animal probably wasn't eating and probably had a calf that was nursing on it, which didn't help the situation," Gabriel says, as another manatee in the pool whips its tail inches from Cluckey's face while she tries to roll the animal into a white foam tarp. Cluckey and the others must keep their guard near these usually gentle giants. They know the deceptive power and speed packed into the tails of these otherwise sloth-like creatures.

"Because she was struck by a boat, a lot of times that could result in trauma to the diaphragm, which separates the lungs from the GI (gastrointestinal) tract, and it can get a tear in it," said Dr. Claire Erlacher-Reid. Such tears can allow digestive content to slip into the thoracic cavity — the hollow space surrounded by the rib cage and the diaphragm, she said. Erlacher-Reid is part of a four-vet, all-female team at SeaWorld who treat rescued animals at the park.

Manatee #2128's nostrils flare open and shut in a pant. She's heavy on one side, the vet says. Maybe it's fluid accumulation, because of the mass or an air pocket in her torso due to tissue tears from the boat-strike injuries. Erlacher-Reid said #2128 is probably the manatee in the worst condition SeaWorld has seen so far this year. "So this likely suggests she's been sick for a very long time," she said.

This day, the vets have little time for chat as they attend to the sickest of SeaWorld's sea cow patients. A green tractor beeps bluntly as it backs up, lifting #2128 in a blue tarp. Cluckey and two SeaWorld staffers donning hard hats help guide the tarp into position, setting her down between the manatee rehab pools and a dolphin pool. She only weighs as much as a three-year old manatee might — just over 600 pounds. As a much older adult, she should weigh more than 800 pounds, maybe even up to 1,000 pounds, Erlacher-Reid says.

Vet tech Stephanie Smith grasps the hand-held yellow X-ray machine over #2128, as bottlenose dolphins splash in a nearby pool. One dolphin in another pool lunges up from the water, showboating a bit, then plunges back down in a splash that tops the pool's edge. No one gets wet, this time. Another pair of dolphins swim up with similar escapades, peering in at the forensic-like scene to see what's up with #2128.

Erlacher-Reid rubs #2128's left flipper in a circular motion with a pad to clean a spot before drawing the dark crimson blood through a thin clear plastic tube, as a dolphin in the next pool spouts air through its blowhole. They all hope #2128 can hold on.

Beyond her boat injuries, the SeaWorld vets say #2128 was malnourished. This year is just the latest in decades of ecological stress for the manatee, especially those in the Indian River Lagoon. Sea cows took a significant hit in 2013 and again in 2016, when something went awry with their diet in their prime habitat — the Indian River Lagoon along Florida's Space Coast, where #2128 and her calf were rescued. But the collapse isn't just there. As seagrass withers statewide, manatees face similar ecological duress.

An adult manatee needs 100 to 200 pounds of seagrass per day to survive. After a cold winter and "superbloom" of algae killed off more than 60% of the Indian River Lagoon's seagrass — and 90% of the grass coverage in some areas — manatees had to shift to gobbling up an algae called Caulerpa. That shift in diet changed the mix of flora and fauna in their guts. Scientists suspected a toxin that affects manatees' nervous systems was hampering the marine mammal's ability to surface, causing it to drown. But several typical algae toxins didn't shown up in testing.

Biologists have likened the mysterious manatee syndrome to when people visit foreign countries and get sick from the food or water. Recent research

by University of Florida has found an increasing body burden of the common pesticide glyphosate in manatees' blood plasma, with higher levels before and during sugarcane harvest, but biologists don't know yet the health significance. This year, their gastrointestinal (GI) tracts look different, said Martine de Wit, a veterinarian with the Florida Fish and Wildlife Conservation Commission.

"During this winter the GI tracts were empty, so indeed that was different from the findings in 2013," de Wit said. "It has been reported that Caulerpa can be toxic, but such toxicity has not been proven in manatees. We have seen IRL manatees eat Caulerpa over the years, but not in large quantities (especially not in 2013) and any reports that we are finding stomachs full now are false. Of course we will continue to keep a close eye on any health issues and test when needed and possible."

Half of this year's dead manatees are adults and severely emaciated, de Wit said of the sea cows she examines at FWC's marine pathology lab. Their guts are empty, their fat and muscle depleted, their livers atrophied, and they show other signs of starvation.

Back behind the scenes at SeaWorld is a labyrinth of round and rectangular rehab pools. It's the front lines of the war to save the sea cow. Cluckey and Braso are among the foot soldiers in the trenches of this tragedy.

"We'd already had a pretty rough winter," Braso says, standing next to SeaWorld's rescue/release truck. They'd thought the worst was over. But it just kept getting worse. Braso estimates their success rate in rehabilitating manatees at about 85%.

"There are animals that are just not going to make it," Braso says as two orphaned manatees chomp away frantically at floating lettuce. With each lunging try, these baby sea cows nudge the lettuce farther forward on the water's surface but seem to strike out at actually getting a mouthful. Finally, one orphan gets the hang of it, grabbing a half-head of Romaine lettuce in its mouth, submerging it, munching away, keeping the leafy meal steady with its flipper as it chews.

By late May, SeaWorld already had 30 manatees in its care, 10 of them critical. Those 30 sea cows eat 6,600 heads of lettuce weekly. For the most

part, the orphans are bottle fed a special formula developed by SeaWorld to mimic a mother's milk. Florida's other rescues use the same formula. Manatees are considered orphaned if they are seen without their mother for 24 hours. A crucial skill she will teach them is where to find warm water areas in the winter, such as power plants. They typically aren't released until they are 600 pounds, which takes about three years in captivity, so raising them isn't cheap.

SeaWorld in Orlando is presently treating sick 30 manatees in varying degrees of health. Cluckey, waist-deep again in a gurgling rehab pool, her blonde ponytail draped over her right shoulder, cradles one orphaned manatee that suckles at the bottle in a scene that appears almost human in nature. Cluckey holds the plastic tube to a baby manatee's semi-whiskered snout, as Nik Ricci holds up a funnel full of a baby formula invented here. Thus begins the long, arduous slog of nurturing an orphaned manatee back to the wild. It all begins in this pool.

Cluckey, 41, like the other SeaWorld rehabbers was educated mostly on the job. After studying biology at Illinois State University and the University of Oregon's Institute of Marine Biology, she applied to SeaWorld facilities in Texas and Florida and in 2003 landed a job as a husbandry assistant at the theme park's Orlando location. There aren’t many manatee rehabbers in this world. Most have a biology bent or background. They all earn PhDs in patience and resilience.

You’ve got to be tough in this business, says Braso. "We put our heart and soul into these animals ...our blood, sweat and tears," Braso said. "Yes it's sad, but it's part of our job," she said of the manatees they must put down. "That call is not taken lightly. I wouldn't say we're numb to it, but it's part of the job." The manatee tragedy hits very close to home for Braso, who over three decades at SeaWorld has been fulfilling a childhood dream of helping wildlife. "Anybody who does this for a career, you kind of start when you're a kid," Braso said.

Cluckey cusps the baby manatee in one arm, holding the bottle of formula with the other as Braso looks on. "How can you not love that face?" Braso says of the baby manatee.

Cluckey lifts her legs over the edge to exit the pool. She sets more lettuce into the pool. Orphans fed, now it’s onto the adults.

SeaWorld is one of only three Florida facilities that will take orphaned manatees. The orphans will be released in a few years, near power plant warm water discharges and other warm water areas, so they learn right away where to go when it gets cold. Until then, it's a balancing act of caring for the animals and nursing them back to health without becoming too attached. "In the long-term, you don't want them associating with humans," Braso said. "Basically you want them to learn how to become a manatee."

Ricci, senior animal care specialist, standing next to the pool, explains: "Our environment is designed to be a natural environment." But he said he fears that the manatees' plight is just a harbinger of more bad to come. "Right now, we're seeing the effects on manatees, but if things don't start to change, that effect is going to start to trickle down to more animals," he said. Bait fish will be next, he warns, followed by the sport fish that eat them, then the dolphins that eat those fish. "So it's just this pattern that's going to keep getting worse and worse and worse," he said.

Some, such as Chessie, an elderly manatee recently released in Palm Beach County, are lucky enough to earn names. They sometimes get satellite tags. too. All get microchipped. The rehabbers grow attached but hope to never see them again.

This day, they tube feed manatee #2128 a barium solution, which appears opaque on X-rays. They see a mass pressing up against her lungs. It could be something from her digestive tract or due to injuries from the boat strike. Sometimes SeaWorld makes house calls to doctors who treat humans to ask for their help with sea cow cures, such as cataract and laser surgery to remove tumors. Rehabbers must improvise often. Failure is not an option. "This team has really been learn as you go," said Lori Cherry, a SeaWorld spokeswoman. "It's almost like the space program."

As waters warm, manatees have naturally ventured from their winter hangouts, which biologists hope should lead them to greener underwater pastures. "We're making strides," Ricci, of SeaWorld, says as two orphaned manatees gobble surface lettuce along the pool's edge. "We've got a lot of smart people looking at this, so I think they're going to come together and formulate a good plan for recovery. It's not going to be sudden. It's going to take a little bit of time. It's going to work from everyone involved, but I think we can get there."

Those strides came too late for Manatee #2128. She never got a name. Instead, she became a statistic. She died May 26. Even the most ardent of human interventions could not save her.

"2128 was in such bad shape that she was not named," Cherry said. "2128 was not able to overcome her extensive and severe health issues and the decision was made to humanely euthanize her and end her suffering."

But she left a legacy of hope, in her offspring, #2129, now an orphan. "Her calf remains in good health and will be evaluated for return to the wild when she reaches appropriate weight and health requirements to survive independently," Cherry said. A name is likely in the offing for manatee #2129 as she gets stronger by the day, but her future remains fraught with an ocean of perils.

To support the Manatee Rehabilitation partnership, visit the website www.manateerescue.org and click the “Donate” link. If you see a distressed or injured manatee, please call the FWC Wildlife hotline: 1-888-404-FWCC (3922).

Jim Waymer is environment reporter at FLORIDA TODAY

https://www.tcpalm.com/in-depth/news/local/environment/2021/07/14/starving-manatees-dying-florida-overwhelming-rescuers/5075411001/