



After the Fact | [The Secret Life of Manatees](#)

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TRANSCRIPT

[Recording plays of water lapping and manatee chirping.]

Dan LeDuc, host: So, Lucy, I'll give away enough to say that that's a manatee, but tell us what that manatee is saying.

Lucy Keith-Diagne, 2017 Pew marine fellow and executive director, African Aquatic Conservation Fund: So that is a single animal who is looking to see if other animals are around. It's calling out to see if other manatees will respond. And what we heard is no other manatees responding. That's just a single animal saying, "Anybody there? Anybody there?"

Dan LeDuc: He's not lonely, is he?

Lucy Keith-Diagne: *[Laughing]* I hope not. Manatees do spend most of their time alone. It may just be a, "Anybody there, but I'm just happily feeding here." That's this common call that they make.

["After the Fact" theme music plays.]

Dan LeDuc: For The Pew Charitable Trusts, I'm Dan LeDuc. This is "After the Fact."

Manatees are kind of like your grizzled, favorite old uncle—not always the most handsome thing to look at with lots of wrinkles, but gentle, the kind of creature that invites wonder, that wouldn't harm a flea.

Lucy Keith-Diagne fell in love with manatees when she was in middle school and now has spent her life studying them. In this latest installment of our "Scientists at Work" series, she tells us how her research led her to Senegal to study the elusive African manatee. And that leads us to our data point for this episode: 21. Here in the United States, manatees are mainly known for making their home in Florida. But African manatees are found in 21 countries on the western side of the continent, according to the International Union for Conservation of Nature.



A 2017 Pew marine fellow, Lucy has made an important discovery about what the African manatee likes to eat and what that means for the people and fish who live around these lovable beasts. And she tells us there's a lot more to learn about these animals.

[To Lucy] So, Lucy, thanks again for being here. You're normally in Senegal, but today we're sitting here in our studios in Washington. So at least you're dry and out of the sun.

Lucy Keith-Diagne: That's right.

Dan LeDuc: So the ocean is full of all sorts of cool stuff, and you've chosen manatees. Why?

Lucy Keith-Diagne: I learned about manatees in seventh grade and came home and told my parents I really wanted to save them. They love to tell that story. And I honestly can't remember what intrigued me about them at that point. And I did work with other species, particularly seals and penguins, before manatees.

But, for me, manatees are really unique in that—imagine, for example, that you were blindfolded and tossed into a river, and yet you could navigate your way to the same spots over and over every year. I mean, that's what manatees do. They live in very murky water.

They don't have very good eyesight, and yet they navigate to the same feeding and resting and meeting sites over and over each year. And in Florida they're navigating to warm water sites to stay warm in the winter. And so, to me, that navigational ability is pretty fascinating.

Dan LeDuc: That's really cool. Is it sort of like, we hear about dolphins and porpoises who have these sonars? How do they know to get around?

Lucy Keith-Diagne: Nobody knows how they do it.

Dan LeDuc: Really?

Lucy Keith Diagne: They do not echolocate like dolphins do. They're using some other sense. It's been shown that the hairs on their body—because they're mammals and people don't think of them as hairy—but they do have short hairs all along their body. And those hairs function like a lateral line in fish. Basically they can feel the movements of the water and the currents.



So if they swim by the mouth of the river, they can feel that water coming out of the river. And so we think that they may use their—literally their sense of feeling to feel their way to different places. But they do this over hundreds of kilometers or miles. And so we're talking about this on a very large scale.

Dan LeDuc: Yeah. So a lot of people listening to this might be familiar with the manatees in Florida and Crystal River and elsewhere. But you're studying manatees that are a little different from that. You're in Africa. Our data point for this episode is the 21 countries where they're found in West Africa. Are people surprised by the fact that there are that many manatees in such a wide array of places?

Lucy Keith-Diagne: Well, most people don't know that there are manatees in the African continent at all. And so they're very shocked when I tell them that I work in Africa and I study manatees, because they do think about Florida and Crystal River, for the most part. And the manatees in Africa live, as you said, in 21 countries, both along the coast and inland.

So some inland landlocked countries like Mali, Niger, and Chad, they do live there, up rivers or in lakes. And it's a huge, enormous range that is literally bigger than the size of the continental United States.

And so they live in this wide range of ecosystems. They live in everything from rivers at the edge of the Sahel and the Sahara. So up in the sand dunes or in the Senegal River there are manatees. In central Africa and rainforests there are manatees. On offshore coastal islands in the Atlantic Ocean there are manatees.

So I'm fascinated with, how do these animals live in such a wide variety of systems, and make a living? You know, they're eating different kinds of food. They face different challenges living in those different systems.

Dan LeDuc: You know, the manatees I've seen are in Crystal River, and they're like these Gentle Bens under the water. They're slow moving. They're kind of awkward, but kind of cool and endearing in their own way. Do the ones that you study in Africa look like that or do they look a little different? How would you describe them?

Lucy Keith-Diagne: They look very similar.

Dan LeDuc: OK.

Lucy Keith-Diagne: They're a little bit smaller. And the ones in Florida, as I mentioned, they have to stay warm when it gets cold in Florida. And they never have that problem in Africa. It never gets too cold for them. So they're actually more streamlined and



described as torpedo-shaped, because they don't have to have the same level of body fat. But they can be as long. And the other thing that is very distinctive about the African manatees is that their eyes are a bit more buggy, or protrude more. I'm not really sure why they've evolved that way. Maybe the water is even muddier than it is in Florida, but they're more bug-eyed.

Dan LeDuc: OK.

Lucy Keith-Diagne: That is the main difference.

Dan LeDuc: That's the main difference. If anything, can we say they're a little sleeker?

Lucy Keith-Diagne: You can. And then in central Africa, for example, in Gabon in central Africa where they are lagoon and riverine animals more than going into the ocean, they are actually quite a bit smaller. And I wonder if someday we're not going to find out that they're a subspecies. Because they are so much smaller and petite that they look like a juvenile or sub-adult animal that you would see in Florida. And I feel like we have a lot of smaller animals in central Africa, you know. We have forest elephants and lots of animals that are smaller in that ecosystem, and maybe manatees are just smaller there too.

Dan LeDuc: Right. So you're describing what they look like, but you don't see them that often, you were telling me before.

Lucy Keith-Diagne: We don't. The water's very murky. The areas where they live are generally remote. I mean, of course they do live near some human developed areas. But more often they live in forests and rivers. And much of their range in Africa is not very developed. It's hard to get to the places where they are.

And the water is either tannic—meaning it has a lot of leaf detritus—and so it's very brown, or it's muddy. And the other reason that we don't see them very often is that they are heavily hunted in most of the countries where they live. Even though there are laws to protect them in every country, they're heavily hunted, and also frequently caught as what we call incidental or bycatch in fisheries. So they get tangled in a fisherman's net, and unfortunately the fishermen choose to eat them rather than release them if they're still alive.

So, they're very scared of people. In Florida, as you were saying in Crystal River, you can get in the water with them or you can paddle next to them in a kayak. It's pretty rare to have a sighting of a manatee that will stick around when you're in a boat. In some places they do, and those are generally protected areas. But they tend to take off as soon as



they hear or see a boat. And we can't get in the water with them very much, because in Africa we have things like Nile crocodiles and hippos and it's just not safe.

Dan LeDuc: Right.

Lucy Keith-Diagne: So we're not in the water with them very much.

Dan LeDuc: OK. Let's listen to a little bit more of what manatees sound like when they're talking to each other.

[Recording of manatee vocalizations]

Dan LeDuc: Now those are manatees in Florida, because there aren't many recordings of these rarer manatees that you study. But they sound a lot alike, you think?

Lucy Keith-Diagne: They do. They sound almost identical. So that noise that you heard is a high-pitched squeak of a calf manatee calling out to its mother, probably for reassurance. "Where are you? Are you still there?"

Dan LeDuc: So you're describing creatures that seem to have personalities, familial relationships.

Lucy Keith-Diagne: Well they do. The strongest bond in the manatee world is between a mom and a calf. And we know from Florida manatees that they generally stay together for approximately two years. So, mom gives birth to her baby, and the baby sticks with mom, nursing—because they're mammals—and following mom to wherever they go. And that's really important, because mom is teaching that baby where to find food, where to find safety, where to find calm resting places, where, in Florida, to get warm in the winter.

And so in Africa it's a bit different, because manatees tend to migrate between rainy and dry seasons. So we assume that a mom in Africa is teaching her baby manatee in the flood season: "When the river floods, we go upriver and we go into the flooded forests and we eat some of the fruits that fall from the trees. And in the dry season we go back down the river to the lagoon and we eat sea grasses or aquatic plants and some other things."

That bond is extremely important. All other—if you see manatees in groups, those are sort of loose associations that they will make for either feeding or breeding purposes, or even traveling purposes. They hang out together for a while and then move on. And so we most frequently see manatees in groups of one, two, or three. But that mom-calf bond is very strong. And we know from work that myself and others have done in



Florida that if it's broken and that calf loses its mom before two years, then it really struggles to acclimate to life in the wild.

Dan LeDuc: Are they found elsewhere in the world?

Lucy Keith-Diagne: There's also an Amazonian manatee in the Amazon. They're the smallest manatee, and they live throughout the Amazon River and its tributaries in Brazil, Peru, and Ecuador. And they're really neat looking. They're much darker. They're black with a little white belly patch that actually is individual to each animal, and they can be identified through that. And the Amazon's a lot like Africa in the sense that it's big and remote and hard to find them. So we talk a lot with researchers in the Amazon, because they're facing the same challenges we are.

Dan LeDuc: Let's listen one more time to some manatees. And this time, they're chewing, right?

Lucy Keith-Diagne: This is a manatee that's eating. Yep.

[Recording of manatee eating]

Lucy Keith-Diagne: They do kind of sound like an underwater cow. I mean, they go along and they graze on the bottom, and they crunch it all up. And they have a very complex digestive system to process all that grass and underwater aquatic plants. And sometimes they'll eat plants even that overhang waterways.

And they'll swim up into flooded forests, which I think is really neat, because you imagine an elephant eating a fruit from a tree in a central Africa rainforest in the dry season and then it floods, and manatees come up and eat that same fruit.

Dan LeDuc: Same fruit. Isn't that amazing?

Lucy Keith-Diagne: So I love that. They are really adaptable; they go into different places. But as I went around doing interviews with people in different parts of Africa, people started mentioning that manatees steal fish from their nets, and that they eat clams and mussels. And I thought, "Well that's crazy."

But my mentor in Florida, Dr. Buddy Powell, who's also a Pew marine fellow, had worked in Africa for 10 years in the '80s and '90s.

And so I contacted Buddy Powell and said, "You're not going to believe this, but these people think the manatees are eating clams." And he said, "Oh, yeah, when I worked in the Ivory Coast in the '90s and we had a couple of dead manatees, we saw clamshells



and remains in their stomachs.” So crunched up shells. And I said, “You're kidding. What? OK. Wow.” So—and then the fish—

Dan LeDuc: Because this is a big deal.

Lucy Keith-Diagne: That’s a big deal. Because these are—

Dan LeDuc: We’re learning something really new about—

Lucy Keith-Diagne: These are animals that everybody thinks they’re herbivores. And in Florida and in the Amazon, as far as anyone can tell, they are. They are strict herbivores, or vegetarians. Whereas in Africa, they are not. And now I can tell you after 12 years in Africa, that pretty much everywhere I go, I hear about them eating fish, mussels, and clams. And the type of species that they’re eating varies, of course, by where they are.

So if they’re stealing the fish from the nets, that makes a fisherman very angry, and then they’re more likely to want to kill them. And the way the fishermen even know is that the manatees tend to suck the body off the head of the fish. So they leave the head and sometimes the spine in the net for the fishermen to find.

And that happened to me in Senegal, in a tributary of the Senegal River during the dry season where everywhere else I had been skeptical. Well maybe it’s crocodiles or maybe it’s turtles. You know, these animals might take fish from a net. But in that place, at that time of year, there are none of those other larger vertebrates that would be able to do that.

Dan LeDuc: It has to be the manatee.

Lucy Keith-Diagne: It had to be the manatees.

Dan LeDuc: So in science, this is a big deal. This is a big discovery.

Lucy Keith-Diagne: It’s a big deal.

Dan LeDuc: And it’s your discovery. Congratulations.

Lucy Keith-Diagne: Thank you. I mean, I have to say that obviously Buddy Powell heard about it before me and wrote about it. So, I sort of thought, OK, well, people are telling me this, but I want to go one step further and scientifically prove it.



So I used a technique called stable isotope analysis, which is more complicated than it sounds. But basically you go out and collect all the kinds of things that you think something's eating, and then you get samples from the animal itself.

Dan LeDuc: And that discovery is important to know, just for the sake of knowledge, but it has ramifications, because that means the manatees are now not popular with fishermen. Which then in turn the fishermen, when they don't like manatees, might be inclined to kill them or do something bad to them or eat them. So you're learning more than just like, something cool about their diet.

Lucy Keith-Diagne: Yes. And then there's another way to look at that as well. In terms of conservation, mollusks—so clams and mussels and fish—are more sensitive to pollutants in the water than a manatee is. So if they're gone because of pollution or destruction of habitat, then manatees are not going to go to that area anymore. So they sort of help us understand what's good habitat now.

But yes, getting back to the fishermen, I mean, it does cause a conflict. And there's no easy solution, because the manatees are going to eat what they eat. And so you can't tell them to stop eating fish. And so we're trying to find some creative solutions. So protected areas would be one where people just can't fish, but that's a hard sell in Africa where people really need to fish.

[Music transition]

Dan LeDuc: Why should all of us care about manatees? I mean, what do they tell us about our world?

Lucy Keith-Diagne: They're an important part of the ecosystem, just as any other species is. So they fill a role. In fact, one thing we have learned, particularly about African manatees is that—so they do still eat quite a lot of plants. And their feces is food for baby fish.

And so people will tell you, in places where you have manatees, you have more baby fish. And more baby fish grow into more adult fish. And people like that. And actually that has helped us to establish at least one protected area in Senegal, where we convinced five local communities to create a community natural reserve by saying, "Look, if you protect this one area where the manatees come to feed, you will have more baby fish outside. And if you don't fish it, as well."

But in terms of the ecosystem, manatees have a role. They eat a lot of aquatic plants. They unclog waterways, for example. And they help balance the ecosystem. If you remove them, there will be ramifications to that ecosystem.



Dan LeDuc: You really like these creatures.

Lucy Keith-Diagne: I do. I do. I think they're kind of neat. I love their navigational abilities, and I love the fact that they're eating something other than plants in Africa. I've nothing against plants, but I love to try and find new sources of diet for them. I like to find out what they're eating, because they're fascinating. I mean, some of the clams they eat are huge, big heavy-shelled animals. How do they open those up to get the clams? Nobody really knows. Some of the fishermen that I've talked to think that—like a walrus—they kind of suck the clam very hard and suck the meat out of it. We don't really know.

They have been called the “forgotten sirenian,” because they're the least studied manatee in the world. There are days where I'll say, you know, “This is great because there's so much to learn,” and “this is terrible because there's so much to learn.”

When I first went to Senegal, people said, “Oh, I think they're almost extinct there.” And I think also because they're so secretive, people don't know how to look for them. So when I went out and I looked for them—because I know how to look for them, and I'm very patient, and I sit in boats for hours on end—I found a lot of them. And in fact, there's quite a few. So that's good news. We still have time.

Dan LeDuc: Lucy, thanks so much for this. It's been great and we wish you safe travels back to Senegal.

Lucy Keith-Diagne: Thank you. Thank you very much.

[Transition music]

Dan LeDuc: Those manatee sounds you heard are courtesy of the U.S. Geological Survey's Wetland and Aquatic Research Center's Sirenia Project. Our thanks to them.

For more on Lucy Keith-Diagne and her work with African manatees, visit us online at pewtrusts.org/afterthefact. That's where we also have a link to a cool video of researchers swimming with manatees in Florida.

Thanks for listening. For The Pew Charitable Trusts, I'm Dan LeDuc and this is “After the Fact.”

[Closing “After the Fact” theme music plays.]