

Getting Curious with Jonathan Van Ness & Deborah Giles

JVN // Welcome back to Getting Curious. I'm Jonathan Van Ness. And every week, you know the drill, I sit down for a gorgeous conversation with a brilliant expert to learn all about something that makes me curious. You know, they have been all up in the news lately and they are also just, like, such a gigantic, like, animal and amazing being and creature that I'm obsessed with. So without further ado, we're learning about orcas today. You're sailing on the open waters, you're basking in the sun, you're holding out your phone for a selfie when (gasp!) you spot an orca headed towards your boat. Are they gonna crash it or are you gonna be BFFys? We're gonna find out today. Welcome to the show, Dr. Deborah Giles, who is the science and research director at the nonprofit Wild Orca, an organization that's working to save Southern Resident killer whales from extinction. She is also a lecturer at the University of Washington's Friday Harbor Labs in Friday Harbor, Washington. Doctor Deborah Giles. How are you today?

DEBORAH GILES // I'm really great. Thank you. How are you, Jonathan?

JVN // I just am so excited I can't stand it. But I will own up to the fact that it did start off from, like, click bait-y news about what the orcas are—is it a conspiracy Doctor Giles, or are we really scared about the orcas? No, tell us everything we got to know.

DEBORAH GILES // Yeah. So I think you're talking about the killer whales that are interacting with vessels in the Iberian Peninsula quite a lot since 2000 and kind of ramping up this year. Truly, I believe, based on what I know about killer whales in general and fish-eating killer whales specifically, I truly believe that these are animals that are just interacting with things in their environment. They're curious animals, they're incredibly tactile animals. If they were out for harming the vessel, they would do a lot more damage than they have done. And it's just not within their personality as a species to quote attack.

JVN // Yeah, because the way the press is covering it, you would think they're like.. a whale had like a negative interaction with the boat. And so she's like, taught her like whale pod friends how to like target these boats.

DEBORAH GILES // So these whales are very targeted and very honed in on sailboats. These are boats with a deep, deep keel as well as a rudder; versus a boat that's a motor boat, something like that. They're not interested in that type of boat. So one animal had some sort of positive interaction with a sailboat, with the rudder or the keel. I don't know if it was a vibration that was happening or water rushing around that part of the boat that sticks down into the water. Whatever it was, it was some sort of positive reaction that the whales experienced, and then the other whales around them, seeing this one whale doing it and started doing it themselves. So they are known in other parts of the world to, we call it, engage in fad behavior; behaviors that pop up out of nowhere, other ones start mimicking the behavior and then oftentimes those behaviors kind of just diminish as quickly as they come about. And so I think it's something like that.

JVN // Misinformation, honey. We've covered it on the podcast before. So thank you for setting the record straight. Is there just, like, a gajillion types of killer whales? Like, I always thought of them as, like, the Free Willie, but there's, but I guess there's, like, there's, like, the sperm whales and the blue whales, like, is that a random question?

DEBORAH GILES // So killer whales are what are called cetaceans. These are whales and dolphins. Killer whales are a unique kind of whale in that they're actually a dolphin, the largest member of the dolphin family. And these are mammals like you and me.

JVN // So you're telling me: killer whales are technically not whales, they're really dolphins.

DEBORAH GILES // Yeah, but don't let that mess you up. That messes a lot of people up. In, in a lot of ways, these words, whale and dolphin, don't really mean anything. They're the same type of animal. So you've got cetaceans, which cover whales, dolphins, porpoises. And within that you've got odontocetes, which are toothed whales, Odon: odon-ta-see, toothed whales. And baleen whales: the ones with the filter feeders. The way that I describe it to, to people is whale and dolphin is very kind of similar to saying yacht and dinghy. It's generally the same idea. It's a thing that floats on the water, that moves about the water and usually can carry things, you know, a boat. Whales and dolphins are two different words to describe cetaceans. And then within cetaceans, then you have to say, "Is it a toothed whale or dolphin or porpoise or is it a baleen whale?" These are marine mammals that spend—that are, are always in the water. There is no period of time in a whale or dolphin's life in which they live out part of their life or life history on land. If you ever see a whale or dolphin on land, it's a bad thing. It means it's dead or dying.

JVN // So the baleens are, like, those ones that eat, like, plankton and they, like, swish, like, the things, like, in and out. And I think that's, like, what they had in, like, Finding Nemo, when Dory and, like, it's, like, stuck, and it's, like, he's like, oooohaahhh, like, I think that's, like, or maybe—

DEBORAH GILES // Although, fun fact.

JVN // Tell me!

DEBORAH GILES // Baleen whales don't echolocate. They don't have the right head structure to echolocate. But in Finding Dory, they have a humpback whale echolocating, which is funny.

JVN // Interesting!

DEBORAH GILES // I often have my students, like, find the factual error. They do something that, that is kind of like echolocation, but it's not. Echolocation proper is the emitting of sound through the melon in the head, which is a fatty liquid sack at the front of the head. That's why dolphins have that shaped head, and killer whales have that shaped head. And they emit sound out of that, the sound waves bounce off of something in the water and then an image that that those sound waves come back, hit a, a fluid filled hollow lower jaw and then that—it's crazy—but that gets vibrated up into the inner ear and then ultimately to the brain to form the picture of what it is that they're seeing. So they see through sound, which is phenomenal. Now killer whales actually have pretty good eyesight but not at, not at depth, not where there's no light. So we do believe that killer whales use their actual eyeballs in the, in the last moments of a prey capture, as well as echolocating.

JVN // I, my mind is blown. I did not... so does, is that the same too, as, like, the cute little dolphins like from Free Willy that they talk about in, like, the cove like, because they kind of have those, like, little...

DEBORAH GILES // So anybody with teeth, any of them with teeth can echolocate.

JVN // Wow.

DEBORAH GILES // Not all of them do as much as killer whales do, but they can, they have the head structure to echolocate and find food.

JVN // That's so interesting Giles. I almost don't know what to do. Wow. I, my brain is like so titillated right now. Ok. Also sidebar, do you hate that they're called killer whales? Do you feel like that's stigmatizing?

DEBORAH GILES // No!

JVN // You love it?

DEBORAH GILES // Yeah, I...

JVN // Because it makes me feel scared of them!

DEBORAH GILES // Well, let me blow your mind in this. So orcinus orca, the genus species name for this species, translates to something akin to "demon dolphin from hell." The reason they're called killer whales actually is because the Spanish were the first ones to really talk about them in the literature. And they actually were saying "whale killers" because again, some of the killer whales are mammal eaters and, and eat, you know, forage on whales. So the Spanish were saying "whale killers" and then in translation, it got changed to killer whales. But you will very rarely hear researchers say orcas. We call them killer whales because that's what they're known as, just like, much like we call them sperm whales even though we know that their heads are not filled with sperm.

JVN // Oh my God. Is that why they were called sperm whales?

DEBORAH GILES // Yeah.

JVN // Because people thought their heads were filled with sperm?

DEBORAH GILES // Yeah. In fact, the fluid that they were after is called spermaceti because of that.

JVN // I'm—wow. I'm obsessed with—have you ever, like, won, like, Most Fun Teacher of the like Universe Award? Because I don't know if I've ever had this much fun on the first 25 minutes of Getting Curious, like, ever, like—now, a sperm whale is a baleen? No!

DEBORAH GILES // Sperm whales are actually toothed whales. Yeah, it's a weird shaped head. They've got this almost square...

JVN // Submarine-looking head!

DEBORAH GILES // Yeah. And then a very, very tiny little jaw that you almost don't see unless they've got their mouth open. But yeah, sperm whales are the ones that go really deep and, and chase after the giant squid, and echolocate off of them. And actually they think the echolocation of a sperm whale is so powerful that it stuns their prey.

JVN // Wow!

DEBORAH GILES // So one other thing I wanted to say is that baleen whales are adapted to have long periods of fasting. So they go generally to cold, nutrient-rich waters to forage, get fat for half the year. And then they make a southern migration down to usually Baja, California or even a little bit farther south to South America, into what we call the birthing and, and breeding lagoons. And generally speaking, these baleen whales do not forage after they leave the cold water. Killer whales are more like you and me where we need to eat every day to maintain optimal health. And when they don't, after a couple of days they start metabolizing their fat stores, which is an area that's essentially a sink for the toxicants that they're ingesting when they're eating whatever it is that they're eating: fish, in the case of fish eaters; mammals, in the case of mammal eaters. All of those toxicants that are bio-accumulating, bio-magnifying up the food chain to the point where you're looking at a killer whale, which is an apex predator, all of those toxicants are circulating in the system, which causes immune compromised situations, makes them more prone to disease, early death. It's also a, a, we believe, a big cause of early mortality in calves. And so when we have females that are pregnant and not getting enough to eat, we have high, high pregnancy

failure rates, up to 70% pregnancy failure rates, in this population of animals because the whales are not getting enough to eat.

JVN // Oh my God. Ok. So, yes. I'm, okay, so, but how big in general do killer whales typically get?

DEBORAH GILES // There's a couple different things to unpack there. So worldwide, there's one species of killer whales right now, they're all called orsinus orca, just like all humans are called homosapiens. But within the killer whale genus and species, what we now know based on genetics, really what it is what it's going to boil down to, but also behavior, we have what we call ecotypes, which is another way of thinking about subspecies of this one species. For example, in Washington State, we potentially have an opportunity to see three different ecotypes of killer whales. These are different populations that do not intermingle with one another. Fish-eating killer whales: that's the one that we study mostly at Wild Orca; highly, highly endangered population of animals. They're only 75 in the wild right now. They only eat fish. They preferentially eat salmon and of all the five species of salmon, they preferentially eat Chinook salmon. Those are the biggest, fattiest Chinook salmon. Also in Washington State, we have a very, very large number of mammal-eating killer whales. Formerly, they were called transient killer whales, because they were not here all the time. They would kind of come and go. But they're not so transient anymore because they've got so much to eat. Now, these are guys that eat seals and sea lions and harbor porpoise and dolls porpoise. So they eat completely different level of the food chain. And there is an intermingling between the fish eaters and the mammal eaters. They don't speak the same language, they don't mate with each other. They, in fact, the mammal eaters actively avoid the fish eaters. They will leave an area when the fish eaters come into the region. Super interesting.

JVN // Do they look the same?

DEBORAH GILES // To the untrained eye? Yes. Absolutely. There are things once you know what to look for, you can tell whether or not it's a, a fish eater or a mammal eater. But generally speaking, they look the same. And then the third type that do also occur on the outer coast of Washington, and these guys go from Southeast Alaska all the way through, past BC, Canada, Washington, Oregon down into California. Those guys are called offshore killer whales. And that's because exactly what it sounds like, they tend to occur offshore. So, from the continental shelf inland. And these guys are shark eaters, mostly. They eat all kinds of different sharks. And we now know from some other researchers that were out in the area where the fish eaters were foraging in the winter, that the shark eaters occasionally will eat salmon. But the shark eaters are not known at all to eat mammals. Now, we know from captive studies that if you put one, two in a tank: a mammal eater and a fish eater, and bred them, they would not naturally want to breed with one another because they don't speak the same language. They, in the wild, they don't see each other as mates. But we know that they can be bred. They can have an offspring that is viable. When you breed, you know, I think it's a...

JVN // Like a mule or whatever.

DEBORAH GILES // Exactly. Yeah, they're sterile. They're not like that. So killer whales can interbreed, but they just don't, because culturally, they are so far apart from each other, they don't see each other as mates.

JVN // So interesting.

DEBORAH GILES // There are at least 10 different ecotypes of killer whales around the world. Probably more. And going forward if we were to fast forward, I don't know, 10 years, maybe less, I do believe that we will see in the literature, an actual, official splitting of the

species to at least be subspecies. So that you'll have the subspecies orsinus orca: salish, you know, whatever orsinus orca: some population in Norway, something like that. But right now, just like humans, it's all one species.

JVN // And there's 10 ecotypes, like, there's 10 that we know of...

DEBORAH GILES // That are currently recognized—and that, so there's, like, four down in Antarctica type A, B, C and D. There's an ecotype in Argentina that partially beaches themselves to forage on seal.

JVN // They beach themselves, the Argentinian ones?

DEBORAH GILES // Yeah, they partially beach themselves going after seals. Those are the ones, crazy guys that you see like on Discovery Channel or something and there'll be a bunch of seals up on the beach and, or sea lions and that, the animals will like surf a wave in and grab a pinniped off the beach and then go out and munch on it. Really the way to think about that is how they make their living as a population. So do males and females stay with their mother for life, like the fish eaters do? You know, do they stay in their pod for life? Do they, what do they eat? What is their language? You know, you've got those guys in the Iberian Peninsula area, those guys are tuna eaters. Now, they're a part, as I understand, and a part of a bigger population where some of those guys actually will pray switch, which is very unique. That is not common: meaning they'll go from one level of the food chain up to the next. That's very rare. But as I understand it, those ones that are engaging with vessels, you know, in Spain and Portugal, are fish eaters and those guys are focused on tuna.

JVN // So you said also earlier that there's only 75 in the wild of the fish eating type outside of like Washington?

DEBORAH GILES // The ones that I study are called the Southern Resident fish-eating killer whales or their official name is Southern Resident killer whales. They were listed on the endangered species list in 2005 because their population was just continuing to decline. This region is the area of the world where almost 100% of the whales that were taken out of the wild and put into captive facilities, back in the sixties and seventies, almost all of the whales were taken out of the Salish sea here in, in Washington State. 1976 was the last time a whale was taken out of the wild here. Now, that was not a Southern Resident fish-eating killer whale, that then, but it was a whale that was taken out of the Salish sea. And so it's a dire situation for the whales that we study here. They are highly imperiled because of the lack of prey, mostly and specifically Chinook salmon. Also vessel presence and associated noise of all types, all types of vessels. Mostly, the, the large container ships that go across the ocean basin. And you know, basically what we say with that is if you can see one of these ships on the horizon, they're potentially loud enough to mask the whale's ability to echolocate and find food.

And when you've got a situation where the, the whales are foraging and looking for prey that is very patchy now, very widely dispersed themselves: that's a bad thing. And then the, the third main identified threat to this population is persistent organic pollutants. So these are man-made chemicals, mostly banned in the seventies, but that are still very persistent in the population. We call them legacy chemicals because they last hundreds of years. And these are chemicals that are making their way up the food chain and right into the blubber of the whales. Now, if the whales are getting enough to eat, like the mammal eaters in this region, it's not that much of a problem because those chemicals, those toxicants stay locked up in the blubber and don't get circulated in the system, like they do in the fish-eating killer whales who are basically in, in periods of famine and deeper famine, because they're not getting enough food to eat every day. Just like humans, again, just like any animal, or really any, you know, living thing: if they're deprived of the basic things that

they need to survive, they're going to be smaller, they're gonna be weaker, things like that. And so we're seeing that now in the Southern Resident fish eating population, overall these animals are smaller at maturity—if they reach maturity—compared to individuals in the same population that reached maturity in past decades.

JVN // Hm. Ok. You guys, we're looking at a visual of killer whales and I'm really entranced. Can you point out what we're looking at?

DEBORAH GILES // Yeah, so the ones that we study here, the top right hand column: you see Northern hemisphere and then right below that, it says Resident killer whales. Within that column, there's two sets, there's a male and female. And so you can see (a) that we do have sexual dimorphism in this species. So the bigger older, bigger males get the preferential encounters for females to sire calves. But so you can see the, the fish eaters here at the top. And then the second ones there are the bigs, previously called transient killer whales. And you can see a little bit, slight difference in size with the mammal eaters versus the fish eaters here in this region. And then the next one down are the offshore killer whales, the ones that I was telling you about, and those guys are the ones that are shark eaters. They're about the same size as our fish eaters. Now go all the way over to the right. It says Antarctic type, (a) killer whales. Those, as far as we know, are the biggest killer whales on the planet. And then go down four and look at the type (c). Look at the size comparison there. They're just a significantly smaller animal. Also another thing that, that, you know, you can start to learn about trying to see if it's a mammal eater or a fish eater: look at this, the eye patch shape; tiny little upward sweeping eye patch for the type (c) versus this monstrous type (b) eye patch, this white patch here.

JVN // Yes. Yes. And the fins are kind of different, too.

DEBORAH GILES // Yeah. Yeah. So now you're starting to see some of the differences. Well, now look back, look back over here for the ones that we see here in Washington State, the fish eaters up here. And you see this saddle patch behind its posterior to the dorsal fin?

JVN // Yes!

DEBORAH GILES // That are white or gray? So far, we have not seen proper open saddle patches on any mammal eating killer whale.

JVN // Now, what's a closed saddle patch and an open saddle patch? So you guys just so, you know, because we're looking at a picture. So think about, like, a whale, if you were looking at it, like from east to west or, like, west to east and, like, its head is to the left and its tail is to the right and the fin is kind of, like, basically in the middle, maybe, like, a thirdish. Like between, like, a third and a middle, like the dorsal fin or whatever, that's the top fin, right, the dorsal one?

DEBORAH GILES // Mmmhm.

JVN // And then, like, their eye patch that Giles was saying earlier, it's, like, all the eye patches of, like, all of these like different ecotypes are like a little—and honestly Giles, like seeing this picture I'm like, I'm kind of surprised that they aren't already different subspecies because they are quite different when you look at it. And I feel like snakes like if they have like one fucking extra stripe, it's like a whole different thing, like—honey, these look super different.

DEBORAH GILES // That's right.

JVN // So, but in the saddle marking is like the white bit like on there, it's giving, like, the stomach slash, like, side.

DEBORAH GILES // Here's the stomach. So that's, that's the ventral side of the whale, the underside of the whale versus the dorsal side, which is the upper side. So I would say the saddle patch, the way to describe it: it's the white patch that is behind the dorsal fin, across the back. Much like you, where you would have a saddle on a horse, sort of thing.

JVN // Ohhhhh. Yes. Ok. So what makes one open or closed?

DEBORAH GILES // An open saddle patch is where you have black intrusion; pigmentation intruded into the white saddle patch.

JVN // You guys, everyone pause right now because we, I have to, I gotta go, I gotta Google it right this instant. I can't even go another second of my life not knowing the intrinsic differences. Giles, I haven't been this fucking titillated in... Am I gonna become an orca researcher or something? Ohhhhhh I see. OK. So open is with black in, in it a little bit and closed is just, like, it is all a white patch.

DEBORAH GILES // Yeah, yup!

JVN // Ok. So then what's their typical lifespan? And does it vary within the ecotypes?

DEBORAH GILES // From this population that we study down here, the oldest female was somewhere between her late eighties and early one hundreds, when she died—quite old. And the oldest male that we know was somewhere in his early sixties. Now, that was J1 and J2, we do think that they are, you know, these are animals that were born a long time ago. So they had a, a completely different upbringing, if you will. They had ample food. The water wasn't as polluted, there was less vessel presence and associated noise. So, in a lot of ways, everything about their life was easier. And probably genetically, they were a hearty stock. So we know that the lifespans are shrinking. You know, I think that, gosh, I don't even exactly know what the, the, the average is, but I can tell you that we're losing females and males in breeding age, when that was not heard of before. And of course, as I said before, we're, we're not getting a lot of recruitment into the population in the form of babies being born and living.

JVN // I mean, 75 in the wild is like you said, like that's dire. Have we ever seen a population get that low and bounce back?

DEBORAH GILES // Yes. Actually, this population got down as low as 71 in the mid-'70s when the capture era ended, there were only 71 fish-eating killer whales. The difference in 1976 versus now is, is that they had ample prey. You know, there was a lot more fish available and we know that the fish is the limiting factor here because it's, you know, we've got, as I mentioned before, the mammal eaters that occur in the same polluted, noisy water, but those guys have plenty to eat. Everything that is on their menu is, is abundant.

JVN // And that keeps the chemicals, like, locked up in their fat or whatever. So it doesn't get transferred to the baby and then it doesn't really have any, like, ill impacts on their, like, health.

DEBORAH GILES // Exactly.

JVN // Are they doing—is there, is there, can, can we do anything?

DEBORAH GILES // In a nutshell, I think the, you know, what has been done to date is the federal government who is responsible for recovering this population of whales, interestingly is also responsible for recovering many, many of the salmon runs that are also on the endangered species list, that these whales would have co-evolved with and need to survive. NOAA, National Oceanic and Atmospheric Administration, is responsible for recovering both those fish on the endangered species list as well as the whales that need

them. So far, sadly, the thing that NOAA is concentrating the most on with regard to helping this population of whales that is so imperiled is passing vessel regulations, which I'm not saying is gonna hurt the whales, but it's not the one thing that can help them the most. What can help the whales the most is to do, honestly, massive fisheries overhaul.

And essentially what Wild Orca has been, you know, calling for for since 2014 is for the whales to be regarded as a major stakeholder; giving the whales a place at the table when fisheries management decisions are being made. And what that means is making sure that they have an actual quota, of fish that's allocated to them. Because right now, they don't have that. Essentially because they're so far down south, all of the fisheries that are occurring in Alaska and off the coast of BC, mostly in, in Alaska are fish that are bound for rivers down here. And yet they're being caught in Alaska and branded as Alaskan fish, and yet they're not born in Alaskan rivers, they're born in rivers that are in the Southern Residence range. And so that's what needs to change is when and where and with what gear we're catching fish.

JVN // So is wild-caught, maybe not even good because we're taking, like, is maybe, like, we should be doing farm-raised!

DEBORAH GILES // No, no, not farm-raised! Farm-raised adds a whole new suite of problems.

JVN // So just don't eat fucking salmon.

DEBORAH GILES // Yeah. Basically.

JVN // I'm down with that. I even fucking like it, it doesn't even taste that good to me. I, it makes me fucking gag sometimes. Like I'd rather eat a goddamn burger or not a burger. I'd rather eat a lentil burger is what I meant to say. I'd love lentil burgers. That's what I meant to say.

DEBORAH GILES // Me too.

JVN // Anyway, sidebar, if, like, a great white shark and an orca cross paths, would the orca like beat the great white sharks' ass or would they just, like, avoid each other?

DEBORAH GILES // Well, we, it's funny you bring this up too because I had a grad, a fellow grad student and he was a major white shark lover. And of course, I'm a killer whale, you know, fanatic. And so we used to get in these debates, and then after the fact since we both graduated, it's been documented ample times that killer whales can easily take out a white shark. Do you know how they do it?

JVN // No!

DEBORAH GILES // It's pretty amazing. So sharks are fish. So they have to be moving forward to have the water going past their gills, where they get their oxygen from. Sharks are also in an unfortunate situation because they have this odd thing, that's probably ancient in evolution. It's called catatonic immobility. And so the way that a killer whale kills, kills a shark, here's your shark.. [SINGING] dun dun, dun dun.

JVN // Giles is holding a staple, you guys.

DEBORAH GILES // Yeah. So then that killer whale comes up and turns over upside down, grabs the shark and then rights itself and basically just swims around with this catatonic, immobile shark until the shark suffocates to death. Amazing.

JVN // That's crazy. And then do they eat it or do they just kill it because it was trying to eat them?

DEBORAH GILES // They eat the liver

JVN // And then they leave the rest?

DEBORAH GILES // Most of it. Yeah. Mhm.

JVN // That's hard core. The killer whales don't give a fuck. They're like the honey badger. They take what it wants.

DEBORAH GILES // Yes!

JVN // Leaves the rest for the other people to eat.

DEBORAH GILES // Exactly.

JVN // Ok, so then we know where the Southern Resident, ok—what else is, or what is unique about Southern Resident killer whales as compared to, like, other orcas.

DEBORAH GILES // Well, one of the most amazing things that they do that we don't see in other populations of whales, at least not to this degree, is they engage in a behavior called a greeting ceremony. The Southern Residents are made up of one clan. It's called J clan. And they are made up of that, we know that they're all part of the same clan because they speak the same language. Whereas the mammal eaters speak a different language. The shark eaters speak a different language. The Northern resident fish-eating killer whales speak a different language. The clan, J clan, is made up of J pod, K pod and L pod. And each of those pods speaks its own dialect. So the way that I like to describe it is all of Southern Residents are speaking English, but some of them have like a New Jersey accent. And some of them speak like Valley Girl and then other, the other pod speaks like deep South. So they're speaking this same language using sometimes the same words, but they have an accent to them. And then there's also some words that only J pod uses and some words or calls, we call them, that K pod uses and only some calls that L pod uses. But generally they speak the same language and can understand each other and have common words that they use amongst each other.

Traditionally, it's been that J pod has been the most resident of the resident three pods. And in the past when there was a lot of fish here, J pod would come back home to the inland waters of the Salish Sea, which are designated critical habitat for this population of animals. J pod would be here say come mid-May end of May, and then another pod would come in late May, early June. And when that would happen, what we would end up seeing is all of J pod lined, up all in a line like this peck to peck, all in a line. And then L pod would line up facing them anywhere from 50 meters to 150 meters, all lined up so that they're all facing each other. So you just have a whole line of whales facing another whole line of whales. And they would just hover there and, like, we don't know what's going on at this point. They're not really speaking, they're not super chatty. And then we don't know what the cue is. Nobody's ever been able to document that, but something happens and then suddenly it's just like a whale ball: whales rolling over on each other, all the whales mixing, you'll have all the older females going off and spending time together. You'll have the young females that are pregnant, being surrounded by the females that are just coming into estrus, just getting to the point in life where they might get pregnant. Because again, remember these are basically swimming sonograms. So everybody knows who's pregnant. And that all the males all go off together and do what we call sword fighting, which you can kind of imagine what that is.

JVN // They play with their dicks together?

DEBORAH GILES // Yeah. Yeah, all the time. And so it's just this amazing social scene, this greeting ceremony, that's just stunning. And unfortunately, we don't really get to see that

anymore. I hope they do it elsewhere, when they come, come upon each other, after some amount of time together. We we presume that they do. We just don't get to see it because there's not enough food to bring them into the inland waters anymore like that.

JVN // When did that happen up until?

DEBORAH GILES // 2013 really was the year that marked the major change in, in the abundance of salmon available to the whales here. It was declining over time, but it really, it really became clear to us that the whales were spending less than half the amount of time in the inland waters compared to how much time they used to spend here.

JVN // And that's really from just like overfishing in Alaska.

DEBORAH GILES // That's a big part of it. Another part of it is damming rivers.

JVN // We've covered that on this podcast, Did you know, Giles? We did a whole episode about, like, the consequences of, like, damming and like, and just, like, all of the things about, about, like, dam displacement, but, like, of people, but it obviously impacts, like, wildlife so much.

DEBORAH GILES // Absolutely. Absolutely. Absolutely.

JVN // So it's really, there's like multiple things. It's not any one thing, but the getting the over-fishery situation situated would help them even more than the vessel regulation?

DEBORAH GILES // Oh, by far. But, and we know that because the mammal eaters have enough to eat and they're literally in the same, you know, vessel filled, noisy waters. And yet their populations, females are getting pregnant every, you know, and giving birth successfully every two or three years versus some of these, you know, we should be having six or seven new babies being born every year into this population of whales. And yet this year, so far we've only had two. Last year, I think we only had two.

JVN // Shit. And they're dying like..?

DEBORAH GILES // Mhm. It's not that they're not getting pregnant. We know that they're getting pregnant because we can see that from the feces that we collect. They just can't stay pregnant.

JVN // Ok. How do we know from the feces though? Really quick? You can't just, like, drop a...

DEBORAH GILES // Yeah. Thank you for saying that. That's what I wanted to pivot to, if that's ok. I wanted to talk about, you know, our work and, and what we do. Ok. So this is our research boat and that dog on the front is our conservation canine, our scent detection dog. So she is trained to sniff out killer whale feces that are floating on the water. So she's highly trained to indicate with her nose and where she's moving her body to tell us where there's a floating killer whale feces. This is her, her name is Eba, E-B-A, and that picture next to it is me holding vials with killer whale feces down in the bottom of each of these tubes with seawater on top. We spin that down in the centrifuge and then ultimately pour off the extra seawater. What we can tell from feces is things like, obviously, we know what species it is because we're behind them and to the side. Using the dog, by the way, allows us to collect these samples noninvasively. We don't have to get anywhere near the whale to collect these samples. So we can tell who it is that pooped out the sample. We can tell if it's a male or a female. We can tell if it's a female, if she's pregnant. Not only that she's pregnant but how pregnant or if she has recently lost a calf based on different hormones that are related to different stages of pregnancy. We can say how stressed out the whales are, how nutritionally um sound or deprived they are. We could tell different toxicants, like I

mentioned the different persistent organic pollutants that are occurring; parasites, microplastics, fungus. We can tell information about their gut microbiome, which we are now knowing more and more about how important a healthy gut microbiome is. We can also look at, we know that they've got antibiotic resistant bacteria in their system. All of these things we can tell by studying their feces.

JVN // How did you all figure that out?

DEBORAH GILES // Doctor Sam Wasser was the, was the kind of pioneer, using dogs scent dogs to, to collect feces noninvasively from animals, all over, terrestrial animals. He did this study on North Atlantic right whales. He came out here and started collecting killer whale feces because the whales were listed on the endangered species list. And so I joined the program in 2009 and, and just never left it. I just think that this is the best program to be able to really understand what's happening on the inside of the whale by studying what's coming out of the whales.

JVN // Totally. I also have a question about, like, pods. So, like, what are the roles of the pod? Like, do people ever get exiled from their pod and then have to go to, like, another pod?

DEBORAH GILES // The question about exiling: that's also a really fascinating thing. I would say the short answer to that is, is that we have had individuals switch pod, but it was not based on being exiled. In fact, it had to do with the mom dying. So specifically, L 87 is a, is an L pod whale whose mom died when he was relatively young. And even though he had L pod family members, for some reason we'll never know, he jumped pod and started hanging out with K pod. He started hanging out with the two oldest members of K pod. And that makes sense based on their natural history because we know that the old post-menopausal females preferentially forage for their adult sons. And so with L 87's mom having died, he jumped, jumped ship if you will, started hanging out with the two oldest K pod females who were probably feeding him like two old grandmothers feed a grandson. So he was probably getting food like crazy and he got big and—really big.

And then when both of those K pod females died, these were old matriarchs, when they died one after the other, he jumped ship again to J pod. Again, started hanging out with the two oldest females. In my mind, this is a smart male. He's aligning himself with two post-menopausal females who do not have or did not have adult male sons of their own. Super smart. Then J 8 died, J 2 died. Then now L 87 has, has realigned with L pod. He actually stayed with J pod, the old, the kind of the matriarch of J pod for a while but now has since jumped ship back to L pod. Really interesting. I'm very excited to try and do some paternity testing on fecal samples of new calves to see if he's mating and, and you know, if he's siring, you know, new babies. We know that the biggest, oldest males are preferentially chosen by the females to sire their calves, which is really interesting too. And it goes back like if you take a step back and to what I just said about the old post-menopausal females, are the ones that are preferentially foraging for and feeding their adult sons.

In, in addition, they are intervening with—this is a brand new study that just came out of the center for Whale research in Exeter University: these post menopausal females are also intervening on behalf of their male sons in encounters that, that sometimes can result in rake marks. Based on scarring, the rough-housing is not really occurring with and amongst females, it's more the males that are, that are rough housing and it's the post-menopausal mothers that are intervening on behalf of their sons to say, "Don't rough house, because I don't want you to get hurt," basically. So it could be play, rough-housing, things like that. But these old post menopausal females are, like, "Oh no, no, no, no fighting. You need to get big, stay big, get old and mate." Because ultimately what that means is that, because males and females in the fish eating population, both males and females stay with their

mother, their family, their entire life, it's important for the males to get big and old so that they're breeding with a female from a *different* matriline. So by doing that, these post-menopausal females are ensuring that their genetics are being passed on by way of keeping their adult male sons alive. He sires a calf that is the responsibility of another pod. It's just, it's brilliant.

JVN // So with the pods of the—the K pod, J pod, and L pod, you said? Right?

DEBORAH GILES // Yeah.

JVN // Now, do those three, do they ever interbreed or, like—

DEBORAH GILES // Being in the same clan means that they breed amongst each other. Js mate with Ks and Ls and Ls mate with Js and Ks. And that's what we were seeing a lot of in the past, and we can see that in the deep, deep history through genetics. By definition, they are inbred because it's always been a fairly small population, or at least it has been for the last hundreds, if not, maybe thousands of years, relatively small population. Honestly, before the capture era, this population probably was never above 200. When the capture era happened, a huge number up, to 57 individuals, were removed. That's a big part of the gene pool to just be plucked out of the wild. The bigger problems have come more recently and that's what we're seeing because of the lack of prey. So going back to that whole concept of having greeting ceremonies and having super pods, a super pod, by definition is when all members of the Southern Resident clan—Js, Ks, and Ls—all members are within essentially calling distance to one another. We are seeing unfortunately less and less of the habitat, to be able to support different members from different pods coming in. And certainly not being able to support whole pods coming in. And so we are seeing some, unfortunately, some inbreeding within pod and within families which is not great.

JVN // With their language, could they ever just, like, get together and be, like, "Y'all, we need to push out, like, should we go get those, like, the out in the ocean killer whales and, like, go like be besties with them because, like, I hear they got food and stuff?" Like, I'm worried about this 75 number. Like, could they ever move, like, to a better place for them?

DEBORAH GILES // Well, they do move. This water, in the inland water of the Salish Sea is only their summer core critical habitat. Where they go in the winter time, J pod does not go outside of Washington and BC waters, that we know. But, Ks and Ls go all the way down to California, middle of California.

JVN // Wow.

DEBORAH GILES // Generally. There's been, there was one account of J pod in Southeast Alaska. So if you were to look at their listing documents with the federal government, their, their outer coast range is from Southeast Alaska to Monterey, California. But, but generally speaking, they're not really going up into Southeast Alaska because then they would be in the territory of two other ecotypes of fish-eating killer whales that they just don't overlap whenever possible. They don't invade another fish eating population's territory, if you will.

JVN // How are those ones doing, not to get off track? But are those ones ok or no?

DEBORAH GILES // Yeah, they are. They are because they're, they're not great but they, but they're definitely increasing in numbers. You know, that's because they have first crack at any fish that escape being caught in Alaska and turn around north to come back to their natal rivers to spawn. Of course, the Southeast Alaskan fish-eating killer whales are right up there. But then the Northern Resident fish-eating killer whales have that, that range in between the Southern and the, and the Southeast Alaskan fish-eating killer whales. So they're intercepting more fish than the Southern Residents have access to.

JVN // Mm. That makes sense. So generally with the Southern Resident whales, like, in a pod you're gonna have like multiple families. Moms, dads, like—

DEBORAH GILES // No, not dads. Moms and her offspring; grandmothers, mothers, and the female's offspring.

JVN // And then where do the dads go?

DEBORAH GILES // Well, in an ideal situation, they are the family members of another matriline.

JVN // Oh, yeah, that's what we were saying earlier. Ok. That makes sense. OK. That totally makes sense. That is really smart. Now it's occurring to me how smart that is. Ok. Yes, I see what you're saying. And then is it a matriarchal society or a patriarchal society? Matriarchal!

DEBORAH GILES // Absolutely.

JVN // That's hot. I love that.

DEBORAH GILES // Generally speaking, you have K, let's say K pod and J pod in the same vicinity and J 27 will be like, "Bye, family! I'm gonna go and check out K 20 for a while." They'll go and, this is just for the day, they'll go and hang out, roll around, have sex. He might go and she might also go and have sex with other members of the groups. But then when, when his family leaves, he goes with them. And she goes with her family. So then when the baby comes, the baby stays with her and just like he has stayed with his mom forever until she dies, or his sister, once mom dies. The family unit, the most genetically related family members: sons, daughters, mothers, nieces, nephews all stay together in each pod, in each matriline. That's what makes up a matriline: a female and all of her descendants. The mammal eating killer whales, you have more of a fission fusion sort of thing, where both males and females will disperse at different times from mom. Sometimes they come back and stay with her for the rest of her life. Sometimes they don't. Sometimes the females will break off from mom and create their own new matriline.

JVN // Oh, ok. Interesting. And then, ok, so then like, typically, like, do they, how do they sleep? Because we were, we did an episode about sleep recently and it really blew my shit up and our sleep expert was teaching me about how every animal sleeps.

DEBORAH GILES // Yeah. It's really interesting. Killer whales rest half their brain when they're sleeping. And the way that they sleep in the wild is they line up again, peck to peck, touching one another, all in a row or grouped so close together that they're essentially touching. This is actual proper sleep. Proper sleep is where all members are, are all of the group that are together, whether or not that's a single matriline or multiple matriline or the whole pod or the whole clan: they get together, they touch one another and one whale essentially stays more awake and we call that the sentinel whale. And when they, and they all end up getting into this very synchronous surfacing and diving, where they'll go down, take, you know, kind of four or five shallow breaths, then go down on a longer dive, come back up, four or five shallow breaths, go down on a longer dive. And when they're really sleeping, you could almost set your clock to it. You can almost like, oh, they're about to come up, oh, there they are. And what they do is they'll come up at different times. But it's that sentinel one that breathes that triggers the breath of the rest of them. It's amazing. But what we're seeing is we've seen a significant decline in resting behavior during daylight hours and the difference is made up in foraging time. So, because there's so few fish, these whales are having to forage that much more to find that many fewer fish.

JVN // Mmmm. So, typical day. Like, do they sleep at night, forage during the day? Or are they nocturnal?

DEBORAH GILES // Yeah. So that's changing, too. But back when studies first started, kind of late '70s through the early '80s, the whales were resting 25 to 27% of the time during daylight hours—during daylight hours, because that's when researchers can study them. And some of the other behaviors were equally split. It wasn't 25-25-25. But there was a nice variety of, of behaviors of the four main behaviors that we code for throughout the daylight hours. So, socializing, resting, foraging and traveling. Ten years later, another PHD put out his dissertation and noticed a definite decrease in resting behavior, all the way down to 13% of the time, during daylight hours. And then my master's and then turned into a PHD as well, interestingly was about 10 years after that. My data showed that the whales are only resting 6.9% of the time during daylight hours. And the difference in that behavioral budget is now being made up in foraging. We're getting this modified rest happening where you'll have maybe one or two animals that are together kind of logging at the surface, getting a little bit of a, it's almost like a nap.

Maybe you'll have a group of animals that are kind of tightly bonded together, but they're, they're not breathing in that really synchronous, stereotypical resting that we used to see. Not only that, we have a new thing that we code for called max-sbread foraging. Where you know, these are whales that are incredibly, incredibly socially bonded with each other, they, they will literally catch a fish and then share it with their family member; catch a fish, bite it in half, and a family member is swimming right next to them to be able to grab that fish. That's a social bonding behavior that we see. We even see it with these whales that are starving. These are whales that could easily eat a fish all by themselves. And yet they preferentially will share it with family members. In order to do that, you need to be closer together, to make that happen. Now, a whale can carry a fish in its mouth to get to where its other family member is and then share it in that way. But what we're seeing is, "I'm spread out as far away from my mom or son or sister as possible where I can echolocate, they can still see the fish that I'm seeing." And that is just not what we want to see with these massive animals that are long-lived, big-bodied animals that are socially bonded, that have a potential to live decades and decades and yet they're not.

JVN // Because I was trying to, like, think of a silver lining. I was, like, "Well, maybe they're just, like, resting more at night because they need to see more during the day." But it's, like, that still speaks to all the same observations that you were saying that they used to be resting 25% of daylight hours, but now it's only six, that still has, like, got to be probably most likely less rest overall because like all the other stuff is like quite confirmed.

DEBORAH GILES // Right.

JVN // Ok, so meanwhile Giles, you're minding your own business. You turn 18. We, I read this earlier when I was prepping for our interview, you're on your 18th birthday and you first encountered killer whales! Like, what happened? Also sidebar are you from the Washington area? Like, have you always been obsessed with whales? Like, what happened? How did, how did this all happen?

DEBORAH GILES // Well, I would say I've probably always been obsessed with whales. And killer whales have always been my favorite since I was, you know, less than 10. I actually don't know where I ever first learned it; probably from, from library books learned about whales because we, we I grew up on a worm farm of all things and didn't have a television. And so we—

JVN // Giles! We keep having this—okay, I, I don't know if I've ever had this much fun on an episode and this is like 350 something. Just so you fucking know. But you just keep dropping these like major sentences. You grew up on a worm farm. Like a literal?! I've, in my 36 years, I've never heard of that before. So we're gonna have to take a quick detour. What is that?

DEBORAH GILES // My dad farmed worms for their casings, which are used in agriculture. It's a, it's a fertilizer, way to fertilize.

JVN // I use them in my fucking garden. I've seen them.

DEBORAH GILES // Yeah, same thing! Yeah.

JVN // So how big was the farm?

DEBORAH GILES // It was big. It was several very, very large barns with worms in it.

JVN // Did he make you, like, work in it when you were little? And you were like, "Ew, this is gross?"

DEBORAH GILES // I was really little at that time. So I, they probably probably did put me to work, but I didn't know it. But also this, this might blow your mind, but a little bit later in life, but before I was 10, during the summer, we were with the carnival. Not the circus, the carnival; my dad had the game tent. We had pinball machines and air hockey and pool tables and things like that. I don't know. My dad was kind of a jack of all trades but, but we didn't have a television was, was the point. So I don't really know where I ever first saw whales. But of course, growing up I knew I loved them. In fact, I spent, the first thing that I ever got to do when I was 16 and could drive without an adult was drive to a marine park in Vallejo that had two captive killer whales. And I handed out flyers asking people not to go in and pay: don't, don't pay to see them! So that was a long time ago, that was in the late '80s. For my 18th birthday, a group of girlfriends surprised me with a road trip from Sacramento, California up here to the San Juans to see the whales for the first time. And they didn't tell me where we were going, but I knew I had a feeling after we crossed into Oregon where we might be going.

And sadly, we, we didn't know, the gal that kind of made the plans booked us on Orcas Island, which is one of the other vert serviced islands here in the San Juan Archipelago, thinking being on Orcas Island, we would be most likely to see orcas. Turns out we were at a campground that was landlocked on a lake; beautiful, but we never would have seen killer whales from Orcas Island. And the good thing that happened is, is my joke is, is that we were the first people ever to be voted off of an island, because we literally got kicked off of Orcas. Our dog that we had with us kept getting, he was a major food hound and kept getting away from us. And of course we're teenagers and not paying attention. And so the ranger said, "You have to leave like you, you're getting kicked off the island, you have to leave in the morning". Sure enough, he came at 7 a.m. to make sure that we were packing up and we packed up in the rain and drove towards the ferry. And we had to wait, this is back when there were no cell phones, and so we had to wait for the county parks on the other islands to open up to see if they, they had any space.

And I called here, San Juan Island County Park, first, and the woman that answered the phone was like, "Oh, yeah, as a matter of fact, we just had a cancellation for eight nights." And I was like, "Please hold it for us. We're coming over". I didn't mention that we got kicked off of the other island. I just said no way, hold it. And she did. And as soon as we hit the island, we headed towards the west side of San Juan and there's this one part of the island where you go over a hill and then kind of down through a forested area and then you kind of bust out into this open space. And I was in the back seat and I remember just looking over kind of across my shoulder and the whales were right there. Right there. And I, I did what I, I hate now, but I got out of the car and started running along the road, running with the whales that were swimming up island. And it changed my life. I mean, it truly changed my life. And I knew I knew as soon as I hit San Juan Island that I would live here someday. And then as soon as I saw the whales I, I was 100% certain. And so, yeah, we

stayed for a week and at the county park and watched the whales go by every day. And, yeah, so I started coming back.

JVN // And you live there now?

DEBORAH GILES // Yeah, moved here full time in 2014, started studying them professionally in 2005. I entered college at 30 then just went 14 years straight to get my undergrad, Masters and PHD

JVN // Giles, you fucking slayed! I'm obsessed that you were obsessed since you were tiny and you just, you know, like some kids are like, I'm gonna be an astronaut. Bitch, you're not gonna be an astronaut. You were like, I'm obsessed with killer whales and you became a fucking PHD of killer whales, Giles. That's amazing. That's so cool. So what, so because like, I mean, what you're doing at Wild Orca is next level, we're obsessed. So, and you're out in these, I like to say out in these streets, but you're out in these oceans. But what's the day look like? Are you guys, are you kind of out collecting poop like, like daily? Is that like your main thing? Like, what's a day for you guys like?

DEBORAH GILES // Well, if the whales are anywhere in range, within range of where we can get in a day and back home, then we go out on them. Unfortunately, we haven't seen them since, our last day out with them was July 4th actually, so a little bit over a month, which is making us all crazy, I will tell you. The whole crew is chomping at the bit for them to come back. But a day in the life, you know, if, if we do have whales, we make a plan to meet in the morning at the boat and we push off as soon as possible and get to, the get to where the whales are. We generally survey the scene to make sure that we understand who's there. Oftentimes we'll go, we'll pick a group. We're trying to prioritize groups that have females that are of the age that are pregnant or could be pregnant, because we really want to reanalyze newer data; go back and update our, our 2017 paper that showed that 69% of the females that get pregnant are losing their calves. So we preferentially choose groups with, with females. And then we often go in, get some side photographs to know who is exactly there. And then we back off and we pull Eba out of her kennel on the boat, and we operate downwind in an ideal situation we're downwind to the side and behind the whale so that we're nowhere near the animals.

And really what we're just doing is with the wind coming across the path that the whales just exited, Eba is gonna have a hit. If the whales have left a fecal sample for us, she'll hit that on that as we enter what's called the scent cone. Which comes out from us, any scent and Eba will hit that on the very far edge of that scent cone. And when that happens, she'll get up on the front of the bow with her front feet, like in that picture you saw, and she'll stand on the front of the bow and, and kind of keep nosing forward as we are moving more, closer and closer into that scent cone. And then when she's, you know, kind of starting to crab walk along to the side, we know that she's starting to lose it. Or if she jumps down and tries to run to the back of the boat, we know we've gone past it. And at that point, we'll turn back around, go back on a 90 then turn into the wind again. So it ends up being kind of this zigzag motion, where she's literally guiding us with her nose into where that sample is. And we can go hundreds of meters, you know, in that manner.

JVN // So you spoke earlier about what the federal government needs to do. What do we need to do? Can we, like, donate to Wild Orca? Do we follow? Like, how can individuals support? Like, how can we help?

DEBORAH GILES // Yeah. Thank you so much for saying that. Donations from the public are huge. It is a big part of what keeps us going. It's a big part of what keeps us literally on the water with gas in the tank. So donations to WildOrca.org would be hugely appreciated. The other thing that people can do is exactly what is happening right now. Get educated and

then pass on the knowledge. You know, you're learning probably, you know, it's kind of like baptism by fire or, you know, drinking from a, a garden hose or something.

JVN // That's our style over here. We love it like that.

DEBORAH GILES // Oh, good. Ok. Yeah, it's a lot of information. So you can go to our website: WildOrca.org/action, we have an action guide right now. Right now there's an action up through the end of August 2023. Hopefully, your podcast will be on air much longer than that, so do check back. But what's up right now in 2023 is a direct link to a page that is going to ask Biden to breach the four lower Snake river dams. Biden has indicated that he is paying attention to this. It is directly through the an office of his own at the White House. And we're desperate for people to, to get engaged by sending letters through the portal that they have provided and you can get to that from Wild Orca's website. And again, if you're hearing this after August 2023 I can assure you that if you go to WildOrca.org/action, you will find other actions that you can participate in. And we, we not only educate you about the issue, but we give talking points, sample letters, sample verbiage, if you're gonna call or, or write a postcard or write a handwritten letter: all of these things are vitally important for people. And then get engaged, get other people engaged by educating them about what you're learning and we can help you with that. So just reach out to us, we're happy, happy to help.

JVN // I hope you get like some influx because like, I'm ready to go fucking like protest at the White House right now. We got to save the fucking Southern Resident whales! So you said that orcas are quote better versions of us. I'm guessing that part of that is that like they're so share-y, like they even when they're like super hungry and they like share with each other. Is there like some other, really? And just that they're genius? But is it like, what else can we learn from them?

DEBORAH GILES // Well, it's, it is that it is the fact that these are, you know, incredibly socially bonded individuals, they're long lived; they know each other by feel by, by sight, by sound, you know, we know that they have best friends. you know, individuals from different pods have best friends that are lifelong friends. They seek each other out when they're, when they're anywhere near each other. You know, they do cooperatively hunt and share food. We, you know, we've seen individuals carrying wounded pod mates or wounded clan mates around that are injured or, or, or even dead. They engage in these incredibly elaborate behaviors like the greeting ceremony or coming up and greeting a brand new calf. You know, the last super pod we had that were again, all members of the Southern Residents were together, was an incredibly, incredibly, it's like un-uneearthly. I don't even know how it happened. But maybe some of your listeners will have heard of J 35 Tahlequah who gave birth to a baby in 2018 and that, that baby died right away and J 35 carried her female calf around, her dead calf around, for 17 days. And, so that was in 2018. In 2020 we were out there, it was COVID, it was my husband because I couldn't have anybody else on the boat, because of COVID restrictions. So just the two of us and Eba were out there collecting fecal samples from, from J pod. We had heard that J 35 had a brand new baby and out of nowhere, out of nowhere, Ks and Ls came flooding in the strait of Wanda Fuca porpoising going 14, 15, 16 knots towards us, towards where J pod was. No idea. Honestly, no earthly idea how they found out that there was a new baby. But they came in, they did a greeting ceremony with J pod. They all came over, looked at the baby inter intermingled, with the baby and with mom, and left that night.

JVN // That like literally made me full cry. Like so her, so that baby is ok still?

DEBORAH GILES // Mhm. Yeah. He's a male baby. He's amazing. We've seen him several times this year.

JVN // So since he's a boy, he'll stay with them for life. No.

DEBORAH GILES // Both male, both males and females will stay with their mom their entire life. Which is just another thing that is just crazy, you know, like they take care of each other until they die!

JVN // And then what hopes do you have for the Southern Resident whales? Just like that they're gonna slay and get back up to like 500?

DEBORAH GILES // I don't expect them ever to get up to more than probably 200.

JVN // Ok. My goal is 500 but I'm a cheerleader. I was a high school cheerleader and a college cheerleader. I'm not, I'm, I'm shooting big, you know, because it's all a negotiation. You got to go over what you think and then you...

DEBORAH GILES // I love it. I love it. Go big. I'm aiming for 175 or 200. What I'm aiming for is 5 or 6 babies to be born every year and live. That would be ideal. And over the course of 25 to 30 years, if that was the case, then we could have a population of killer whales that would be removed from the endangered species list. That's what I want to see. And how, how that happens, and why I'm still hopeful is that so many more people are becoming educated about this population of animals. So many more people are understanding that they play a critical role. As individual human beings, each person plays a critical role in the recovery of this population. And what that looks like is by getting engaged in all the different things that you can become engaged in. You know, if you're gonna eat salmon, don't eat chinook at least, don't, you know, maybe eat sockeye, or maybe eat pink, pink salmon. Nobody wants to eat pink salmon because they're bony, but there are ways to prepare pink salmon. These are hyperabundant salmon, or just don't eat salmon for a while.

You know, there's a lawsuit that is still in the works right now that would have limited troll fishing in Alaska. At the last minute, a three judge panel reversed the the decision by a, by a, a federal judge that was going to stop the troll fishing in Southeast Alaska in winter and summer. This three judge panel was able to reverse that because of economic concerns associated with the fishermen not being able to fish. My answer to that is: my gosh, we have subsidized the the agriculture industry like crazy, we do not subsidize the fishing industry at all. So we should be paying fishermen for an amount of time not to fish so that they can feed their families, but allow the salmon stocks to rebound. Those are the kinds of things that still are possible and that, that therefore give me hope that we can turn this around for the fish eating Southern Resident killer whales, that are all the way down here at the bottom of the barrel. They're picking off the last of the dregs and that's not how it should be. These whales were the original fishers of Pacific salmon. They co-evolved eating salmon from rivers in Oregon, Washington and B.C. Canada. And as such, they deserve a place at the table. They should get an allocation of food that's earmarked just for them so that they're not gonna starve and go extinct.

JVN // [Snapping sound] Hm. What's next for you and your work? And where can and how can we follow along?

DEBORAH GILES // Yeah. So the next big thing is, is the PFAS paper. You know, this is these are old chemicals, they've been around since the '70s, earlier actually. But it's just emerging everywhere. And the fact that it is, it is being found in the killer whales is, is, you know, all of these things are, you know, they're such an iconic animal and people relate to them so well, that when we say that, you know DDT, we're seeing DDT in L pod more than we're seeing in K and Ks and Js because, because L Pod goes all the way down to Monterey, which has that, a lot of agricultural runoff goes right into Monterey Bay. You know, we've got something called the California signature where DDT is showing up in L Pod the most: that resonates with people. So PFAS, our PFAS paper is definitely coming out. We want to

update the pregnancy paper, with our newer samples. And then looking at microplastics and gut microbiome are our next other big things.

JVN // Y'all donate to WildOrca.org yesterday. Stay tuned for the PFAS paper and for the update on the pregnancy paper. Doctor Giles, I feel like we left no stone unturned except for I know I could talk to you for like six more hours and we probably like barely even scratched the surface. So we're gonna have to have you back someday.

DEBORAH GILES // Where are you physically located?

JVN // I'm in Austin, Texas. But am I coming to visit you in?

DEBORAH GILES // I think you should, I think you should.

JVN // I mean, fuck it. We're going on a company trip. We're, we're gonna, we're going to meet—Erica, get it together. I know Erica our producer is a little bit of a homebody. I'm sorry, we're going to go, like, literally out looking at the killer whales, but I think I'm down. So let's get it together.

DEBORAH GILES // Come in September. That's the best time to come, most likely to see whales then. But that'd be fun to do a live podcast.

JVN // Giles! Your lips to God's ear. See—there is a marketer in there, there's a little marketer in there and she's about to blow up on TikTok. So I'm excited for you for that. I think that's a wrap.

DEBORAH GILES // You're the best. I love your enthusiasm and thank your whole team for reaching out to us. We, we love talking about the whales and getting other people excited about them.

JVN // You've been listening to Getting Curious with me, Jonathan Van Ness. You can learn more about this week's guest and their area of expertise in the episode description of whatever you're listening to the show on, honey! You can follow us on Instagram @CuriousWithJVN, yes! Our theme music is "Freak" by Quiñ - thank you so much to her for letting us use it. Our editor is Nathanael McClure. Getting Curious is produced by me, Erica Getto, Chris McClure, and Allison Weiss. With production support from Julie Carrillo, Anne Currie, and Samantha Martinez. Has, like, a killer whale and, like, a dolphin. Ever, like, fallen in love and had, like, a baby that was like a mule of the sea, or like a donkey of the sea?

DEBORAH GILES // No, I think genetically they're far, they're too far apart to, to have offspring.

JVN // Mm. Mhm.

DEBORAH GILES // Not to say that some dolphin might not have tried it because dolphins, you know...

JVN // Yeah, they're horny, apparently.

DEBORAH GILES // Mmhm.