

March 6, 2009
Call with Carlton Defrechou
Interviewer: Winder Lyons

WINDER: Well I'd like to welcome everybody to our call, my name is Winder Lyons and I have Carlton Defrechou with us, Carlton, welcome to the call.

CARLTON: Glad to be here!

WINDER: Now you are, tell us, what's the formal name of the organization that you head?

CARLTON: Winder, we're the, well I'm with the Pontchartrain Basin Foundation. The Pontchartrain Basin Foundation is a private non-profit, we were established in 1989. It's kind of unique as a non-profit, we were actually created by the state legislature as a private corporation with the mission to oversee the restoration of not only Lake Pontchartrain, but the entire Pontchartrain Basin. Basically the 10,000 square miles of southeast Louisiana, from Baton Rouge to the Mississippi state line, from north of the Floridic parishes, out by McComb, Mississippi out to the Chandeliers. The reason the legislature created LPBF, Lake Pontchartrain Basin Foundation, because there was an outcry of local citizens in the late 80s, that's when Lake Pontchartrain was still a brown mess, very polluted and not a good place for a fish or a human to be in. So it was a result of that outcry the state legislature said "yeah citizens, you guys are right, while many of our state agencies have tried to do something about it, we haven't been successful." So the state created LPBF as an independent entity, they, to their credit there was a godsend, they gave it a one time funding, kind of a seed funds to get going. And they set it up, the organization, its Board of Directors is a bit different from traditional non-profits too. It's not necessarily the movers and shakers in the community, it's actually elected, it's nominated and elected by members of the organization. So it is truly a representative organization. And we do everything from act as watchdogs for water quality, pollution issues, to coastal restoration and we try to do it, base everything we do on the best science available. So that's it in a nut, in fact this year will be the 20th year anniversary of the Pontchartrain Basin Foundation.

WINDER: That's very cool. Now, so basically you're everything east of the Mississippi?

CARLTON: Yep. We're everything from all the, if you think of the tip of the Louisiana boot kind of on the map, that's us. Everything down from Baton Rouge, down to New Orleans, and out to the Chandelier Islands.

WINDER: Okay and so then Kerry St. Pe's group the Terrebonne, Barataria-Terrebonne.

CARLTON: They're too far west, on the west bank, so yes.

WINDER: They're the west side of the Mississippi.

CARLTON: That's correct

WINDER: You guys kind of divide up the state. I'm sorry.

CARLTON: Yeah, what happens, what we try to do is take a watershed approach, everything within a drainage basin and, any drop of rainfall that happens in that 10,000 square miles of Pontchartrain, will eventually, even if it starts up in McComb, Mississippi, it's going to eventually wind its way down toward Lake Pontchartrain. And the same thing with the Barataria-Terrebonne Basin, if the rain falls on the west side of the Mississippi River it will go to the south and west, over towards Barataria and ultimately toward Grand Isle.

WINDER: In reading the sort of landmark book "Bayou Farewell," it, the case is made, pretty strongly, that we have a very small window of opportunity left to really begin the process of saving the Louisiana wetlands from extinction and the catastrophic consequences of that. How, first of all, what is your organization's stance or thoughts or position on that issue? And let's use that as a place to really begin the conversation.

CARLTON: We're behind a power curve. We meaning, we in Louisiana are behind the coastal restoration power curve. If we look back at just history the development of coastal Louisiana happened over about 7,000 years, when the Mississippi river wiggled back and forth about 4 different times, it created these 6,000 plus square miles that were coastal Louisiana. What's really frightening, more than frightening, scary is that just in the 20th century from the 1930s, when once the Mississippi River was levied, we cut off, we humans unintentionally cut off the sediments to the coast, from that point to today we've lost over 2,000 square miles of our coast, actually about 2,100 square miles and if you look at it a little bit tighter time frame, Winder, the mid 1950s from after the Second World War is when the human impacts really started kicking in particularly with the dredging of the navigation canals and it really chopped up, criss-crossed our coast. And a lot to do with the unintentional consequences of exploration for Orleans gas for the coast, that really changed the plumbing, the natural plumbing, the way the water flows. That allowed salt water to intrude into areas that were historically brackish or maybe even fresh water swamps. The cypress swamps that used to ring certainly St. Bernard's Parish below New Orleans, even some areas of Lake Pontchartrain, because salinity has increased so much we don't see cypress in the Pontchartrain Basin in any numbers until you get over toward Lake Maurepas now. It's a long way around saying, yes, we are, we are more than alarmed about it, frankly we're frightened. There is an urgency in our opinion to get out there and not only, first thing we've got to do is stop the hemorrhaging. Stop the demise of our coast and then start a very aggressive restoration program.

WINDER: Now is it fair to say that the know-how, the technology, exists to actually orchestrated and correct the problem?

CARLTON: Yes. We don't know it all, by no means do we know it all. But we know enough now to begin. And certainly to stop the disappearance of the coast that is ongoing even as we speak. There are an array of alternatives, that actually the best thing we can do is try to mimic mother nature. There's no real rocket science here, but just try to get back out there, to rebuild the natural features of our coast that used to be those first lines of defense. Natural ridges, the old relics, the banks of the relics stream through the coast, the land bridges, large land mass there is east of the river, those would be Biloxi Marshes, Brenton marshes, west towards Bitnip would be the Barataria, obviously a land bridge, and the barrier islands, Chandelier on the east side of the river there, they were from Hurricane George in 1998 until Katrina in 2005, Chandelier's lost over 60% of their surface area, they just, the repeat after repeat of those big storms just tore them up.

And we've seen a lot of the same thing happening on the west side of the river. It's, to answer your question, do we know it all? No. Do we know enough to beginning? Heck yeah.

WINDER: And so, why aren't we?

CARLTON: We, you know, I get in trouble when I say this, I got in trouble just a couple of days ago at a conference with the core of engineers and many of the state folks. The reality is we don't have the commitment. We, while we talk about it, a lot of the federal government and the state of Louisiana is committed, right now, to building levies. While, they have to their credit, both the feds and the state are adopting what we Lake Pontchartrain Basin Foundation, Coalition Restore the Coast of Louisiana are promoting the multiple lines of defense strategy, that idea of using those natural features of the coast that I mentioned earlier like the barrier islands, the land bridges, the ridges too, is actually our first lines of defense to knock down the storm surge and enhance storm protection. The state agencies, the feds, are adopting those, but at this point, they're just giving them lip service, there are no, what's really sorry right now the only real coastal project, the only project that's in the coast that's going to make any quantifiable difference right now is plugging the Mississippi River Gulf outlet. And that little bitty, that plug, which is, I should back this up here just a second, that is a major accomplishment in itself because it will start to reverse the hydrology or restore the hydrology that we used to have before that 40 mile wide channel was dredged, southeast of New Orleans, bisecting our coast. But that little project isn't even considered a coastal project, it's consider a navigation reauthorization project, so at the moment we are, as far as coastal projects go, they're little bitty things, couple acres here, couple acres there but there's nothing that's truly integrated and that's where the big concern, I think, for many of us that are in this trying to championing each and every day the reality is we are still losing coast at a rate of three times more than we are restoring it.

WINDER: So we're losing?

CARLTON: Every acre of coast that we restore, we're losing three. If you look at the Delta there, it means, if you're a banker, or just a businessman and for every dollar you bring in you're spending three, that means you're going to go out of business pretty quick.

WINDER: So we're losing 25 square miles per year these days?

CARLTON: The average land loss rate for the state from the what, the Mississippi line over by the Pearl River, all the way to Texas, by the Calceaux Subine, is 20-25 square miles per year, that's an average land loss rate. Here's the kicker that really gets frightening, in Hurricane Katrina, we lost, just east of the river, 79.3 square miles in 30 hours, three times the average land loss rate of the state in 30 hours.

WINDER: Oh good lord.

CARLTON: If you take Katrina and Rita together, for the entire coast we've lost 200 square miles, eight times the average.

WINDER: 200.

CARLTON: 200. In one month. And that's the kind of stuff that makes, hey just as we're talking here the hair on my arms is standing up.

WINDER: How do you get, how do you wrap your brain around 200 square miles of land loss?

CARLTON: It's, the best way I can do it, and this will probably cause a little bit more of that hair to stand up, Lake Pontchartrain itself, if you visualize the lake, it's 600 square miles. So if you would, 600 square miles of surface area, so if, picture a third of that being lopped off or just erase, that's pretty much what happened during Hurricane Katrina and Rita. In which, what makes it worse it's not just in one area, it's spread around the coast and makes those, particularly the areas that are very vulnerable, where there's just a little piece of a relic marsh or something, a barrier from the shoreline to an interior pond, once those break and you get that open water interacting with the interior pond everything goes to heck in a hand basket in a very fast way. So it's, the urgency is, I know I'm sounding like, I guess, on a box here preaching, but the urgency is real and the biggest concern I have is, is that many of us in coastal Louisiana we equate storm protection with levies. And is there a need for levies around highly urbanized, densely populated areas, without a doubt, certainly. But the bottom line is levies got us in this problem and if we just depend on levies alone, the coast is going to continue to encroach, get closer and closer to New Orleans, to Halmount, other coastal communities, and we will never ever be able to build levies that are higher and wide enough to, it would just be a vicious cycle that would go on forever.

WINDER: Let's talk about for a moment what's going to happen if we don't actually stop the problem and reverse it.

CARLTON: Well, there's been some discussion off and on of New Orleans becoming this sliver on the river and while that is not on the horizon in the near term and in our lifetimes, could that happen in the next century? Sure. It could actually happen probably quicker than that. If the coast continues to subside, not if, it will continue to subside, that's a natural process, it will continue to erode, the wave energy will eat away at the shoreline, that's natural. These human impacts, the building of levies and cutting off sediments and fresh water input to the marshes, that has stressed the marshes. The hydrologic impacts, the cutting of all those navigation canals, that's allowed the Gulf to intrude in the areas that were historically are robust wetlands that provide those natural lines of defense. If we do not reverse or do not do something to address that hemorrhage, then in all likelihood that hemorrhage, just like an individual, if you get ill and you don't take care of yourself, that sickness gets a critical mass and it's just going to get worse and worse and worse and worse. And what's happening now to coastal Louisiana is we're seeing, the one thing that will survive is nature. And nature will change it's dynamic, it's changing from the system we used to, the self sustain coastal system we used to have of the cypress swamps in the interior, the very freshwater swamps to that brackish system, then out to the saline environment to the coast. We're losing that brackish and fresh water swamps to conversions to more saline environments. So the bottom line is the saltier waters of the Gulf are coming in, the bottom line is the Gulf is getting close to developed areas and that's what. At some point, do I think New Orleans will get wiped off the map? No. Could New Orleans could become, literally, an island? Yeah. Could Homa be much more at risk than it is? Definitely, actually Homa's been, I think, very very fortunate to date. And ultimately, we may see, if things don't change, we could just see the old natural relic ridges of the banks of the Mississippi, Bayou LaFouche, Bayou Teche, those will be the fingers going out into the Gulf, because that would be the only high land left.

WINDER: What are the impacts of that in terms of practical things that would change people's lives all over the country?

CARLTON: All over the country? The first would be energy. Oil and gas infrastructure will be there, we have a, if you look at pipeline maps of the state of Louisiana it looks like a bowl of spaghetti. Pipelines criss-crossing all over the place, the vast majority of these pipelines in our coastal zone were intended to, heck they were placed in areas that were marshes, that were not intended to be subjected to high energy of open water environments, those will become much more at risk because of the wave energy and actually some are, there have been instances, many instance unfortunately, of these popping up and breaking with the open water environment. The energy that we, that the country uses about 30% of what is used domestically is either produced or is imported through coastal Louisiana, that will be another impact, look, after any storm now, I guess maybe Ivan was the first one, then Katrina, Rita, and most recently, Gustav, Ike, whenever we have a major storm that hits anywhere near coastal Louisiana, look at the price of gasoline, it spikes up almost immediately, which is a direct indication of the relationship between our coast and the energy infrastructure that the country uses.

WINDER: So you're saying, if I'm understanding what you just said, if this problem is not addressed and the wetlands continue to erode, basically 30% of the production or distribution of oil in this country will be interrupted?

CARLTON: Yes, 30% of the product would, could be interrupted. If you're, we've got the majority of refineries, we've got, we certainly have, first of all we've got the distribution system for the product. And it's, the reality is, if coastal Louisiana goes, then the demand for energy in this country would be, if we were paying, what, \$4/gallon for gasoline last year, there could be a 30% demand on that, so just conceptually, it could run the price up another \$1.50/gallon or more so we'd be looking at \$5.50 or \$6/gallon for fuel. It is critical to preserve the coast of Louisiana if nothing else just for the energy demands of the nation. But getting back to your question, the energy demands, while that's probably the biggest economic one. Fisheries, Louisiana's wetlands, even though we're losing them, 40% of the wetlands in all of the United States, continental US, are right here. And the fisheries that we produced, the nursery grounds, even the bastering areas, the areas where the fresh waters from rivers meet with the salty waters of the sea, whether it's Pontchartrain, Batataria, Blechafulia, those are the most productive nursery grounds on the face of the good planet Earth. And the more of the coastal wetlands we lose the less areas there will be for breeding grounds, for, doesn't matter if you're a fin fish or a shell fish, or a trout or a crab, you will, they will be impacted. So the fisheries, the US Fisheries could be impacted and that's both commercial and recreational, and there's also this, many people talk about the warm and fuzzy, about the character of our communities, whether it's the Cajun culture, the Spanish, French, colonial, every kind of influence, the melting pot that is New Orleans, there is history down here. And it is history in a big way, New Orleans was at one point the 4th largest city in the US at the, for many of us at our half a century old or older we remember when Atlanta was a podunk town and Houston was a bunch of dust in Texas, if you wanted to go some place, New Orleans was the place, we would rival New York or any place else for culture or anything in the arts, and this community is and this community I'm using in a broader sense, coastal Louisiana, is unique, maybe this is a little too parochial for, coming from a Louisiana local boy down here, if it goes, we're losing, the United States is losing, from Thomas Jefferson on, the Louisiana Purchase on, the

United States bought Louisiana Purchase not because of any of the turf to the left, not to be disrespectful to any of our neighbors, above us or to the west of Louisiana, but the reality is the US bought it because of the location of New Orleans and the Mississippi River. And the Mississippi, again, we're talking, getting back to the economic ends, this is what the fifth largest port system on the planet. From New Orleans up to Baton Rouge, it is, if we lose coastal Louisiana all of that could be impact, the warm and fuzzy on the people end, yeah we might lose 2 million people on the coast too that would have to move further up north, so it could be...

WINDER: What would that cost?

CARLTON: It could be, that's what, that's another thing that's so frustrating, I'm going to back up the clock just a little bit. Pre-Katrina and Rita the estimates to make our coast and to get it back to a self sustaining status were about 14 billion dollars, and yes that's a tremendous number and it would always frighten me when I'd speak about it. To do it today the state is reluctant to even talk about numbers, the federal government has yet to do it although they're supposed to publish their numbers within the next few months, but the numbers that we're seeing from the state and the feds are in excess of 100 billion.

WINDER: Well that was a little bit different number there than the first one.

CARLTON: Yeah. And that's to put it in perspective, the US government, and god bless everybody, I shouldn't have said the US government but god bless all of the folks throughout the country who have helped us out so much since the storms, the US has put out an estimated 80 to 90 billion dollars on hurricane repairs or relief, and this is not only in Louisiana, but in Mississippi too, this is just Katrina and Rita, since 2005. Of that, if you look at hurricane protection work, levy work, about 14 billion dollars has gone into just building more, higher and bigger levies and floodwalls around metro New Orleans. And the balance has gone into the repairs and the damages. And if we get another, not if, because we will get another storm, we live in a coastal area, heck we live in a, if you want to put a bull's eye on the Gulf Coast and you look at historically the path of hurricanes, we get them, and we get the most of them because we're right at the center of the dang-gone, I don't mean this negative, we're at the center of the Gulf. And it's that's the way of the weather patterns, push the storms in, so we're going to get more. Those damages though, you think about in excess of 50 billion dollars of damages after major storms and if we look at those every couple of years, we're in this warm cycle now of more frequent and stronger storms, it's ludicrous not to get out there and try to do everything you can to make that system more robust and cut down on the damages. But unfortunately,

WINDER: How long would it take?

CARLTON: It can, some things could happen quickly. I talked a little bit about plugging the MRGO, that little bitty project, it's a 30 million dollar project, which is again a lot of money, but in the grand scheme of things is a drop in the bucket, that one project, just plugging the channel at Bayou LaLoutre, will restore the natural ridge at LaLoutre, that old relic ridge, so that's going to get back the Biloxi Eastern to north, the Brenton one to the south of it, that's going to start to restore that natural hydrology. We'll probably see salinities above LaLoutre on the Lake Born, Biloxi Marsh side start to reduce within a matter of months, probably about 2 to maybe even 3 parts per thousand. So that, in and of itself, is going to be a major step back toward recreating a

self sustaining system. I, there are things we can do, pumping sediments, to restore some of those natural ridges we talked about earlier to replenish the barrier islands, the, we need more reintroduction of the Mississippi River. The Mississippi River does two things, it, first of all its sediments on its annual flood cycle over eons and eons, those sediments are what built the coast of Louisiana, we are naturally subsiding or sinking, so without those sediments to replace what is what's happened as we settle away into the Gulf, we'll just get worse and worse, more and more water, so we've got to reconnect the river to the coast in big ways, with spillways, these will more than likely happen below New Orleans. We also have to get the river water, get some more fresh water out into the areas where we've had the salt water intrude. There are two diversions now, Canarvon on the east bank, Davis Pond on the west bank, one, Canarvon's just below New Orleans, Davis Pond is immediately above it. These are, while there's been a lot of hype and politically about, these are going to be land building diversions. They were never designed to be land building diversions. The reality is in the 90s when they were finally constructed, these things were kind of like if you're building an airplane, the first one that comes off the drawing board is an experimental version you never intend it to be an airline or something that goes into production, it is a, truly an experimental thing that you learn from. And that's exactly what these two projects were. And over the last 10, actually 15 years now, we've learned a lot from both of them, particularly Canarvon. First, one thing we learned is that fresh water alone is not enough, you have got to get sediments out there. The other thing we learned was that you've got to mimic the Mississippi River's natural cycle, use those pulses, you know when the high water comes up that's when the real, the river's loaded with sediments, try to pulse the water out in big splurts or a few weeks there when that high water's up, get it over the marshes, get that overland flow so you'll get the sediments out into the marshes, settling down there. And once the water's out there the fresh water actually it stays in the area for a long time because of the natural storage of the area, so it's a, have we learned a lot, yeah, do we know it all, no. Do we know enough to get going more than enough. And can we, will it turn around in the near term? Here will be some things that will happen in the near term. Here's the other, I don't mean to be, to frighten everyone too much, but I do mean to be very sincere, the demise of this coast has been happening since the 1930s, and particularly since the 19—oh since the Second World War, the second half of the 20th century, really in our lifetime, Winder. To reverse it will take at least that long and to really to get it to be in a very robust state will be probably 100 years. Can we see things that will help in the next 10 years? Definitely. Can we see things that will make a demonstratable reduction in hurricanes in the next decade to two decades? Without a doubt. But to get the coast back to a truly robust state, it's going to take at least 20-25 years, maybe more.

WINDER: Well if, harkening back to what you said, if every time a major storm hits and we have an additional 50 billion dollars of damage, it doesn't take a rocket scientist to figure out we need to put some money in and get this situation handled now.

CARLTON: You're exactly right, that's what,

WINDER: I mean, Kerry St. Pe, I was chatting with Kerry the other day and he said you know people need to understand, levies are not going to do the job.

CARLTON: He is, he's on target, this levy stuff. Levies are what got us into the problem. Did they, after the 27th flood of the Mississippi, certainly they did this great thing for economic boom with forming above New Orleans, and throughout the country and actually for training the river for

navigation, but unintentionally those levies started the demise of coastal Louisiana and more recently, particularly after the, really in the 60s when we started building levies in a big way for hurricane protection, those were the ones that, they give you this, they will give you a near term increase in security, or the feds call it risk reduction now, they don't even call it storm protection anymore because they know the systems will, they may not fail, hopefully they'll never fail again as they did catastrophically in Katrina, but the likelihood is that a storm will come that the levies will be over the top, even these massive 20 foot levies around New Orleans, will probably be overtopped in the next 25-30 years. But levies, that is, I guess, one of the largest concerns I have, is that many residents of Louisiana still believe that the solution to storm protection is building levies. And that, while a levy may provide a near term degree of protection, it is not the ultimate solution, all it can do, it will mask. It's kind of like taking an aspirin if you've got the flu. You'll feel better for a little while, but it's going to come back and if you don't take care of yourself, it'll get you.

WINDER: Well, we have to have a, as I understand it, a multi-tiered approach, there's a whole series of things that start with the barrier islands and then you have a whole series of grasses and levies and bayous and all these things.

CARLTON: Yeah, that again gets back to the multiple lines of defense approach that Pontchartrain Basin Foundation, Coalition Restore Coastal Louisiana, and others are championing right now. The cornerstone of it is recreating a self sustaining coastal system and to do that, what we're trying to do again it's not reinventing the wheel, it's basically going back to in the simplest terms what we did is we went back to before we humans started monkeying with the coast in the, pre-1930s. Looked at habitat types, where was the fresh water swamps, where was the intermediate area, where was the real saline areas, and whether it's cypress tress or core grass or whatever out there. We started to use that as a baseline of, okay we knew these habitats were self sustaining, what were the changes since then, what do we need to do to reverse those changes? Much like, on a smaller scale, Winder, Lake Pontchartrain. When we started with Pntchartrain's restoration in the early 90s when the lake was just this brown mess that many called, actually John Henkel a state senator, a late state senator, who used to call it a cesspool in kind of a literal but joking fashion, when we started the restoration of Pontchartrain what we did was just go around and look for the sources of pollution. Once we identified them we systematically addressed them, whether it was urban runoff from New Orleans or sewage discharges from the North Shore, the rapidly growing areas of the North Shore, or agricultural dairy runoff. We'd find them, we'd identify them, and try to find a project that would cut off that pollution. Once the pollution was cut off, the lake did the rest, Mother Nature did the rest. By the mid 90s the water clarity had started to come back, shell dredging was eliminated. By the late 90s when we started to cut down the bacteria counts of pollution going into it we had a lake that was fishable and swimable again. In fact, today as I look out of my office over it, when you and I were kids if we had 6 inches of visibility in the lake that was a doggone good day. Today the lake is flat, you know, we can see the bottom, we can see the sandbar.

WINDER: Oh, that's incredible.

CARLTON: And that, just using that methodology, the same thing with the coast. Once you identify the problems, you try to replicate nature's natural processes, certainly accelerate them in some instances, whenever we can, like place sediments to rebuild those ridges, that's a natural

barrier, go back there and plug those channels that are allowing salt water to intrude in such as the Mississippi Rive Gulf outlet and others. By doing those simple things, those are the ones that can see near term impacts, positive impacts, reverses within it might be a couple of months or a couple of years. For the longer term the re-establishment of the cypress forests and others those are the ones that will take decades.

WINDER: One more quick thing about the, what's going to happen if we don't fix this. Talk about the bird life and its impact for the rest of the country, not just in Louisiana.

CARLTON: I'm glad you brought it up, many folks if you think about the fisheries for the country, the shellfish and crabs, but the reality is, is whether you are a duck or a purple martin, this is probably your primary fly way and we've got birds that are migrating all over from North America to South America and they come right down from here. So yes, the more of the coast that goes the less habitat there will be for these guys to winter, certainly duck hunters have been impacted already to a large degree. They've seen many of their ponds turn to open water, many of their old, even hunting grounds that I knew as a kid, my dad and the Biloxi marshes, sorry to say, but they're just no more, it's just all water. The purple martins, these little critters that come from way up north and go way down south to Yucatan, to Mexico every year, they will come in just a few more months, you will see them massing around the causeway and they'll be here for a couple of weeks while they rest up going back north. Then a couple months later in the fall they'll come back down, rest up a couple of days, then head back south. The more distance that gets between Yucatan and real ground around here, the fewer birds that will be able to make it. So it's a, it is certainly an impact to, and I just, I'm naming two species there, but we've got pelicans, seagulls, all the shore birds, heck we've even got eagles on the coast again. Eagles are down here, again much like pelicans, because while the coast is in a state of demise, much of the areas closer in, such as Lake Pontchartrain, are, it's, they're healthy again, so there is a thriving system in the areas that are further north, unfortunately, what's happening is we're seeing a conversion of these areas that were historically fresh habitats into this more intermediate and the bottom line is we're losing the large ecosystems that we used to have there, they are shrinking even as we speak.

WINDER: Isn't it a fact that 50-75% of the migratory birds in this country fly through Louisiana?

CARLTON: Yeah, you're exactly right.

WINDER: And that the populations are declining already?

CARLTON: Yes.

WINDER: And that's pretty bleak, I mean, we might not lose them all they might shift to some other places, but we're, the prognosis is not good.

CARLTON: Unfortunately, things are changing.

WINDER: And so what, look at that just for a moment, just that one fact for the whole country, what if our bird population are decimated in that way, what impact would that have on everything else?

CARLTON: Well, you've got to forgive me for a minute here because I'm a simple minded engineer, I'm not a real birder, but here's what I do know just from my outdoors end. If we lose any species they will, that will have ripple effects through many other species, because whether it's a duck or a seagull or even a sparrow, you know they will they're going to migrate around, they going to carry seeds with them, they will, in some instances will be a predator, in other instances they will be prey. So if we lose any of that, that will impact the other critters that either they thrive on or they are dependent on those. So anything we lose in the ecosystem will have a ripple effect. It might not seem large at first, in fact at first it will be, it will unidentifiable, but over time that's when it things could start multiplying, and you get, falling back to our coast, when we first levied, when we humans first levied the river it seemed like a great thing, and was it? Sure for economic group and navigation definitely, but we did not recognize those impacts that would happen to the coast of Louisiana. And the bigger ones, the ones after the Second World War, the cutting of the navigation canals, the slicing of the coast those were certainly, no one had ill intentions when doing those, those were done again for, to benefit the nation and not only the region but the nation. But those unintentional consequences, those are the ones that are, it's no longer the boogeyman in the closet, it's the terrorist at the front door, if we don't address them, they're going to get us, it's like a rattlesnake that's ready to strike. And it's, I'm an environmentalist, I like everything to live, but if amounts to something's going to do me in or I'm going to do it in, I'm will do it in. That's probably not a good, a good comparison. All critters have a purpose, even rattlesnakes. Snakes and water mocs.

WINDER: Well, we're messing with the web of life and we—

CARLTON: That's exactly right.

WINDER: --And we don't know what we're doing.

CARLTON: Mother Nature and God need to do that. And the only thing we can do, again, it is not complicated, it's not rocket science, all we need to do is mimic Mother Nature. If we do that, just like Lake Pontchartrain came back in a spectacular fashion, almost miraculous fashion, the coast of Louisiana can without a doubt, we can stop the hemorrhage, we will never see the coast that you and I knew as kids, Winder, but we can certainly, everything that's out there today can be preserved and much of what was lost can be restored.

WINDER: So what do people need to do to make this happen? What are some practical things?

CARLTON: Get engaged, you know this is hard for all of us, we're all busy every day working, trying to pay mortgages, pay utilities, take care of our kids and families. But here's the deal, if we are going to live down here, unless we decided to move above Baton Rouge or go to Houston or Atlanta, if we're going to live in coastal Louisiana, we all have to recognize this levies alone stuff is not going to work. Maybe I can close with this, for those of us again, like you and I, a half century old or older, Hurricane Betsy, if we back up the clock to 1965, that was the storm of record for the region prior to Katrina. Hurricane Betsy comes in '65 and it's 125 mph winds in New Orleans and in many ways a much more critical path storm than Katrina, but after Hurricane Betsy and the damages they were tremendous then, St. Bernard's flooded, much of the 9th Ward generally flooded, but after a couple of weeks the city was without power, power was restored and we started rebuilding, and the US Government, President Johnson came right after and said 'it's

never going to happen again. Uncle Sam is going to come in and we're going to build these levies and New Orleans is going to be safe.' Well, it started like a house of fire, building levies right after this, after Betsy, it slowed down in the '70s, some of the work slowed down. In the '80s there was hardly any work, '90s there was a trickling of work, 40 years later almost to the day, Hurricane Katrina comes. Betsy was in September of '65, Katrina's in late August of 2005. Katrina comes, Katrina geographically in the Gulf is a much broader storm than Betsy, and certainly at one point is a more powerful storm, but when Katrina hits the shoreline it is, it goes east of the river, it is not as much of a critical path storm as Betsy, the wind feel in New Orleans is less than Betsy. With Katrina the main impact is really the Mississippi Gulf Coast, but what happens at Katrina, we've got these levies around the city that are 15 and in some areas 17 feet high, they are not only overtopped, they're in many instances, be it St. Bernard's or New Orleans East, they're washed out. The big difference between Hurricane Betsy and Hurricane Katrina is the demise of coastal Louisiana; well we had this levy system in Katrina that was supposed to be orders of magnitude, head and shoulders better than we ever had before. It was not enough to stand up to Katrina because we had lost that coast that we had 40 years prior. So we've got to, this is where, again, I don't mean to sound like I'm preaching, but it is, it's critical that all of us that live in coastal Louisiana and for that matter anybody in the country, again going back to the economic impacts of losing coastal Louisiana, just on the price of gasoline alone, every time we get hit by a major storm we're going to look at tens of billions of dollars of damages. And god bless everybody in the country that helps us out, but those damages will recur every time there is a storm unless we get this robust self sustaining coast back there again. And I guess my final message to everyone listen is, can it be done? Without a doubt, all we've got to do is be committed to do it.

WINDER: Okay. Well I think that's the task at hand so for everyone who is listen to this or reading the transcript, there will be links, there are links on the website to get in touch with the Pontchartrain Basin Foundation and the other groups that we're supporting with this and I want to encourage everyone to please get involved, donate some money, write some letters, raise your voices, let's band together and fix this because it affects everyone. Now here's the bottom line of the whole thing, everybody else that's in the country, if you don't get this fixed 2 million of south Louisiana are going to have to find some place else to live and you don't want these people living next to you, I know these people, let them stay down in Louisiana!

(laughter)

WINDER: Well, it is a, it's a serious situation and we have way too much at stake this incredibly rich culture, this beautiful land, hundreds of species of plants and animals, birds and aquatic life that will be gone forever if we don't. It is unimaginable, the consequences, so there is no choice, we will do this, we have to do this, and we are counting on everyone's help. So, that being said, Carlton, thank you very much for your time.

CARLTON: Winder, I enjoyed it and thanks for everyone for listening.