City of Coral Gables City Commission Meeting
Agenda Item G-2
January 12, 2021
City Commission Chambers
405 Biltmore Way, Coral Gables, FL

City Commission
Mayor Raul Valdes-Fauli
Vice Mayor Vince Lago
Commissioner Pat Keon
Commissioner Michael Mena
Commissioner Jorge Fors

City Staff
City Manager, Peter Iglesias
Assistant City Manager, Ed Santamaria
City Attorney, Miriam Ramos
City Clerk, Billy Urquia

Public Speaker(s)
Alberto Aran
Mayra Jolie

Agenda Item G-2 [9:47 a.m.]

A presentation to reestablish native oysters to combat nutrient pollution in the Coral Gables Waterway.
(Sponsored by Vice Mayor Lago).

Mayor Valdes-Fauli: G-2, presentation to reestablish native oysters to combat nutrient pollution in the Coral Gables Waterways. And we have received an email from Juan Galan (phonetic), as you may have seen.

Vice Mayor Lago: I know, I know. Juan's a good guy. I appreciate -- I always appreciate his insight. Even when we're on the opposite side of the table, his insight is always appreciated. You know, so this is an interesting story by a young man who I wanted to take the opportunity to introduce to you. This young man Aran reached out to me and spoke to me a little bit about his interest about the environment. And any time that I can get a chance to honor and recognize somebody who is committing themselves and is standing up for our environment knowing how important our environment is to our business community, knowing how important it is to this city as a result of the fact that we get 25 percent of our tax base from the waterways here. He has made a commitment. He is fighting for what is right. This Commission, this City stands with you. And I wanted him to talk to you a little bit about -- very quickly -- native oysters because I was -- you know, I'm a spear fisherman. I'm on the water. I like to snorkel. I like to take my girls and my friends out there and enjoy the waterways. And I've seen a serious decline over the last few years of the water quality that we have, especially the seagrass. And you know, there used to be lobsters all over the place. The amount of fish has declined significantly, and you've seen red tide and you've seen a lot of different things and it's all as a result of -- and like I've spoken to the ACM and I've spoken to the City Manager and they have a great handle on this. And it's just the amount of nutrients in the water, it's just unsustainable. So I wanted to talk to you a little bit about native oysters. Because after I -- after he explained it to me, these are incredible animals that he's going to talk to you a little bit about and the project that he's doing, which I'm supporting not only up here, but also, I'm going to support him financially. And I ask anybody in this community to reach out to this young man and help him because he's taking a leadership role and I think it's important. So the floor is yours and I really appreciate you being here, my friend. Thank you so much.

Alberto Aran: Thank you so much.

Vice Mayor Lago: No, please, the floor is yours.

Mr. Aran: Yes, Mayor, and thank you, everyone. So my name is Alberto Aran, and I grew up here in Coral Gables, one of the 25 percent that was lucky enough to live on the water. And so, as

a kid, I literally had my head off the side of a dock every night. And so, you know, I'm not sure if I can see my presentation anywhere.

Commissioner Keon: It's behind you.

Mayor Valdes-Fauli: Yeah, right there.

Mr. Aran: Okay, thank you very much. And this is the clicker?

Vice Mayor Lago: Yes, sir.

Mr. Aran: I'm new to this so…

Vice Mayor Lago: No worires.

Mr. Aran: Please bear with me. So I -- you know, what I want to bring forth is simply this, you know. There was the native oyster that used to live here, you know. In old, essentially historic documents it's listed as luxuriant. To date, it's at less than one percent than what it was, and that's really because it lived along the coast. It lived in the mangroves, and we've changed the lay of the land in order that we can live here and that the land is well drained. So, we actually created new ecosystems and new spaces where the freshwater is running through and that provides an opportunity that really hasn't been touched or managed. So, before I really dive into any of this, I just want to be very clear that this project that I'm proposing will not affect navigation. It will not affect boating. What this is, is going to be anywhere where there are current -- those flat tree oysters, which are like the skinny varietal -- right? -- that is exactly where these oysters that I'm proposing are going to go. And so what I have up here on the slide is essentially -- these are the waterways that are under obviously Coral Gables jurisdiction. And on the right-hand side, you can see essentially a persistent algae bloom that -- in that whole yellow area. And that's where the majority of the seagrass die-off has happened. So, in Miami-Dade County…

Mayor Valdes-Fauli: That's where the what? The majority of what?

Mr. Aran: The majority of the seagrass die-off in the waterways that are -- that come off of the Coral Gables come from. So, in this area, from 2005 to 2018, we've lost over 84 percent of the seagrass, okay, which is incredible and a little bit mind blowing, just from 2005 to 2018. Now, when I personally go back into the Google Earth Pro satellite data and all this kind of stuff, you know, what we have is a moving target, you know, obviously. We've seen the seagrasses improve in quality and then drop as well. And in '95, it was actually the strongest period that there's satellite data available for but now it's going down. So, anyways, just to give you a sense of what the layout is here, so there's about 21 different basins that are flowing into Biscayne Bay. And so if we really want to approach this and not have our heads explode (INAUDIBLE), we need to go basin by basin and really figure out how can we restore the natural liver and kidney function and digestion function of the waterways to help us clean and filter to kind of help us restore these seagrasses. Now, when I'm talking about oysters -- right? -- oysters are going to remove the sediment from the water. They're going to also take out nitrogen and phosphorus in small degrees -- right? -- and at the same time, all the essentially bacterial growth on the outside and in the soils underneath are also going to be processing that nitrogen and releasing it into the air. So, what I have here are the different basins that flow into the bay. And on the right-hand side, you know, a bacterial report. You know, Coral Gables has a lot of septic and that's not an issue that's going to be solved overnight; though what can be done is that we can start to add some of this biological digestive function into the system. So, when you look at most breakdowns of how water flows through the system, they're always missing like a big point here. And I couldn't actually find a graphic that had the oysters placed into the system, so obviously we know the mangroves are here at the top. So traditionally, the water would flow off the land. There are two types of mangroves that like have had a strong affect on water quality. One of them is the black mangrove. That's the one that has like the spikes coming out and that would capture any leaf litter and create soil. And then there's the red mangroves on the edge of the water that hand down, and that's really where the oysters used to thrive on the roots of those mangroves. Obviously, we've changed the face of

the waterway, and with that, we've really lost a lot of the oysters. So, the oysters will also be cleaning the water and create clarity and drop the nutrient load to allow seagrasses to start to recover. So, how does the process actually happen in terms of nutrient uptake? We have the bacterial on the outside of the shell, then the oyster itself is eating and digesting that. And then in the soil as well, that bacteria is also going to be slowly breaking down that nitrogen and releasing it back into the air. Okay, so the issue that we have to date, I said that we have less than one percent population of historical levels. So, what we have right now is essentially the population is too low to be able to thrive and grow. So, the project that I'm proposing is essentially that we give a little boost and we get a little help by essentially using a hatchery to -- you know, obviously with all the right permits and going through everybody -- but to gather native oysters that are out there in the bay. I see them all the time now that my eyes are open, gathering them, allowing them to reproduce in a hatchery setting and then have those oysters set up as "mother colonies" that can be put in (INAUDIBLE), let's say, or something like this where they're protected from predators along the waterway. Then anywhere where current flat tree oysters are growing, right, the -- these eastern oysters -- these are the oysters or the -- essentially, we can call them the true oyster, right, the native true oyster, has a greater filtration possibility and there's plenty of habitat that's already there without us even needing to do anything to start.

Vice Mayor Lago: Could I -- and I don't -- I hate to interrupt you.

Mr. Aran: Absolutely.

Vice Mayor Lago: But I had a resident who wrote us an email who was concerned…

Mr. Aran: Excellent.

Vice Mayor Lago: About the installation of these oysters. Do you think that in our waterways right now if you went out there visually you could see any oysters right now on the…

Mr. Aran: Absolutely. I've seen them myself.

Vice Mayor Lago: Okay, but you said there's…

Mr. Aran: Under the Cocoplum Circle, down there, there's plenty of flat tree oysters all along the edge where people fish down there.

Vice Mayor Lago: But there's less than one percent.

Mr. Aran: Now, there's the flat tree oysters are all over the place, but the oyster that I'm talking about…

Vice Mayor Lago: Yes. This is what I want to be clear.

Mr. Aran: The native oyster…

Vice Mayor Lago: Yes.

Mr. Aran: Is out there and I see it at Matheson Hammock. I see it in the Coral Gables waterway. I see it in waterways up and down the coast from Deering Bay. Even I was all the way up in Little River and right there off the park, they're there in small populations. But at a population level that's so low they're not having a chance to thrive so the predators will just quickly wipe them out.

Mayor Valdes-Fauli: But these are not the ones that stick to docks or pilings or whatever. These are different oysters.

Mr. Aran: They are. They are the ones that stick to docks.

Commissioner Keon: They are the ones.

Mayor Valdes-Fauli: They are?

Mr. Aran: Yes, sir.

Mayor Valdes-Fauli: A lot of people object to those.

Mr. Aran: A lot of people object to those?

Vice Mayor Lago: Yeah.

Mayor Valdes-Fauli: We got a big email today objecting to those. And they…

Mr. Aran: I mean, we're -- if we want -- if we look at, you know, the waterway as a biological system -- because it is regardless of if we choose to treat it like that or not -- we need to have a digestive component of the system.

Mayor Valdes-Fauli: But those oysters that stick to pilings are the ones you're talking about.

Mr. Aran: We have -- you're never going to get rid of oysters. If the water is living, you're going to be…

Mayor Valdes-Fauli: No, I'm not talking about get…

Mr. Aran: Yes, sir.

Mayor Valdes-Fauli: In order to answer this person that wrote to us…

Mr. Aran: Okay.

Mayor Valdes-Fauli: The ones that stick to pilings and docks and the bottoms of boats, those are the ones that you want to bring and repopulate in our canals.

Mr. Aran: Yes. And they're also currently a different species of oyster that are already attaching to the bottom of docks and boats. But I don't think that they will attach to boats. I don't see that.

Commissioner Fors: (INAUDIBLE) pilings move under the docks?

Unidentified Speaker: No, the ones that are currently here (INAUDIBLE)…

Mr. Aran: Anything that's hanging in the water, right, is what it's going to attach to, just like the flat tree oysters. If you leave a dock -- a line in the docks, sponges will grow on it.

Commissioner Fors: You know why those oysters are more prevalent than the native ones?

Mr. Aran: I do and that's because…

Commissioner Fors: They're not as tasty?

Mr. Aran: Huh?

Commissioner Fors: They're not as tasty to predators?

Mr. Aran: Well, we've kind of -- so this is the short answer. The species that is very prevalent right now, they attach to surfaces in a different way. They have like a little spindle system, so they have like these little threads, right. These oysters that I'm proposing, the native oysters, they attach more solidly and they'd actually be a little bit of a protective characteristic to it. So, you were ask -- can you repeat that question one time because I just…

Commissioner Fors: Yes. Is there a reason why the ones that people see now are more prevalent than the native ones?

Mr. Aran: Yes. So, simply put, all these waterways and canals weren't -- like we made them, so they weren't habitat that was able to be added into place. The other thing is that we used to have an oyster industry in the north bay really up until like the 1920s. We were pulling oysters out of the north bay and we were crushing them and we were using them to fill in some of the islands that filled Biscayne bay, and also to crush them and help them to build our roads. So, if we look at this next slide, this is like a really simple graphic, but essentially, you know, it doesn't matter how many babies are in the water, right. A large -- one oyster can produce between 14 and 114 million eggs, right. Now, just to give you a sense and perspective, if we had 6.6 million oysters, adult oysters in the water, that would be the equivalent of the wastewater treatment plant here in Miami-Dade County that does 330 million gallons a day, okay.

Vice Mayor Lago: And by the way, and that's the great thing about this, it's natural. It was here before we were ever here and the numbers are pretty staggering when you look at it, and he's going to go over them, when you talk about the filtration possibilities. So, if you're talking about -- like this Commission has talked about getting, you know, a transition from septic tanks to sewers, stormwater runoff, the issues of the nutrients coming from the sugar industry, this is just another opportunity, another arrow in our quiver to deliver clean water over the next few years.

Mr. Aran: Right, and it's something that we can do immediately, and it's something that can be done quickly, but what is stopping these oysters -- back to your question -- from actually growing has been two things: lack of habitat, right, because they need a hard substrate to attach to. So, when we pulled all those shells out of the water, we essentially didn't give a place for the baby oysters to land. So, if they don't have anywhere to land, they won't grow. So, by the time, you know, we had dumped all of our wastewater into the bay for a long time, we had carved out drainage canals creating a lot of silt and plume that covered a lot of things and we opened up

Haulover to change the salinity regimen, those things really hit it hard and impacted it. So, these waterways, if given a chance, they will thrive. And you know, what we need is a landing place for these babies to start to attach and do the work and really start to help us clean the waterways. And so…

Commissioner Keon: So…

Mr. Aran: Yes, yes.

Commissioner Keon: What do you propose for them to attach to? It seems that you're saying you need a substance for these oysters to attach to in order to thrive again in the bay. What -- how are you -- what is that? What do you propose for that?

Mr. Aran: So, the -- what I am proposing is that we would essentially create a community effort and collect oyster shells from the restaurants and hotel industry already here and start to lay down some lines of cured and dried oysters off of docks, right. You can do that under a dock in a shaded area, then we have just created extra habitat for them to thrive and grow and then they can also grow on the pilings, on the seawalls. But by just adding -- if you literally just leave an old line under your dock, they will attach. Now, if you have those oyster…

Commissioner Keon: Yeah.

Mr. Aran: Shells already on there…

Commissioner Keon: Right.

Mr. Aran: They'll attach much quicker and they'll have a safe place to land.

Commissioner Keon: How many oysters? What sort of a population of oysters do you need to be able to effectively filter the water? I mean, what do you -- how many?

Mr. Aran: I don't have the flow numbers of…

Commissioner Keon: Oh, okay.

Mr. Aran: How much water is moving through the Gables waterway. I'd love a little bit of help maybe trying to find that.

Commissioner Keon: Matt can help you. The City staff has all of the information I think that you're looking for…

Mr. Aran: Excellent.

Commissioner Keon: To do that. So, are you looking that says like an individual project that maybe homeowners along the waterway would do to increase the oyster population like related to their docks? I mean, is that what you're looking to do? What do you -- what's your…

Mr. Aran: What I'm looking to do is to do two main things, okay. The first is to add -- you can consider them like those little live bait walls, cages that have oyster shells in it, live oysters and that could help stay in the water and floating. And that could help, number one, clean the water, but really number two is act as the mother colony to help seed the waterway already. That's the first thing. The second thing is to add lines down from docks in areas that won't affect boating or navigation. And obviously, every homeowner can choose where they're most comfortable for them to attach to add extra habitat. Because when you think about what the coast was…

Commissioner Keon: Yeah.

Mr. Aran: Before it was mangroves. So, if we're talking about all these roots hanging down, the amount of surface area on those roots was much bigger. Right now, we have a flat seawall, right.

Commissioner Keon: Right.

Mr. Aran: If you have 20 mangrove roots, that multiplies that space maybe ten times in terms of like what surface area the oysters have to attach. So, in old writings they used to say you could just -- old writings, like a hundred years ago -- you could cut off a mangrove root and you could feed ten people with…

Commissioner Keon: Right.

Mr. Aran: The amount of oysters that are on them.

Commissioner Keon: Do the manatees eat those?

Mr. Aran: They don't.

Commissioner Keon: They don't.

Mr. Aran: Manatees are vegetarian.

Vice Mayor Lago: Manatees are only…

Commissioner Keon: I know, but I see them on the mangroves, you know, eating off of the mangrove roots. What are they eating?

Mr. Aran: What it does with them -- I'm sorry about that. Go ahead.

Commissioner Keon: No, I'm asking you what are they eating off the mangrove roots, the manatees. I see them.

Mr. Aran: The manatees?

Commissioner Keon: Yeah.

Mr. Aran: I don't know, to be honest.

Commissioner Keon: Oh, okay. I see them.

Mr. Aran: Yeah.

Mayor Valdes-Fauli: Why don't we…

Commissioner Keon: Thank you. Maybe you could work with…

Mayor Valdes-Fauli: Very good presentation.

Commissioner Keon: Yeah. Maybe they could -- he could work with Matt and I know we're doing a study with FIU and…

Mr. Aran: Well, this is the data from the FIU study.

Commissioner Keon: Right.

Vice Mayor Lago: Why don't we let him finish.

Commissioner Keon: But you could maybe…

Vice Mayor Lago: Why don't we let him…

Mr. Aran: Yeah.

Commissioner Keon: Go ahead. I'm sorry. You can finish.

Vice Mayor Lago: As the sponsor of the item…

Commissioner Keon: Finish.

Vice Mayor Lago: Let's just let the gentleman finish so I can give you a little -- I wanted him to educate us all on what's going on and then gauge the Commission's interest because I'm going to help you and I wanted to…

Mr. Aran: Beautiful.

Vice Mayor Lago: You know, get everyone on one page in regards to -- so finish the presentation so that…

Mayor Valdes-Fauli: I think we need more specific information.

Vice Mayor Lago: Yeah, he has it for you.

Mr. Aran: Absolutely, and I'm here to serve and answer any of your questions. So, this is the data from FIU, right. We have -- I've highlighted in green -- that's the salinity required for the oysters to thrive.

Commissioner Keon: Right.

Mr. Aran: Okay, so the yellow line there at the bottom, we're talking about the FIU sensor that's on Blue Road, right, and up there at the top is the opening of the Coral Gables waterway. So, really, you know, even just the mouth of Coral Gables waterway, up to where all those big buildings are, we're talking about there's 12 acres of land there, right. So, there is -- even if we were just to attach -- you know, approach that space, we would be generating a big effect in terms of filtration of water. So, just to give you a sense of that habitat is sufficient. Or right there, I'm sorry, blue is Cocoplum. Yeah, I got it right. So, what I'm proposing is this, simple lines that are hanging off under the docks where we have oysters that are strung up by teaming up with the local community of cured oysters. And if we could hand out some lines like this, this is the perfect landing spot and it would mimic, right, if we do some bio mimicry to try and copy nature. We're adding so much more surface area for these oysters to attach to. Now, think about this. One piling, even if it has a hundred oysters, which is a relatively small number, that piling every day would be filtering 5,000 gallons of water. Every dock has about four. We're talking about 20,000 gallons of water from each property being filtered as the water moves down the waterway. So, you know, what I'm asking for and what I'm really looking for is support in moving through this process. There's obviously some, you know, logistical pieces and all that kind of stuff that need to be put in place and time requirements in order to make this work. But if I had a dream list, you know, I would say I would love a place where we could essentially designate like a -- maybe a drop-off site or two where volunteers from the community could gather from the restaurants and come drop off those oysters via in a bin or something. The second item would be to have a place or a small piece of land to be able to cure those oysters. They need to be cured for three months in the sun and the rain, if that's possible. If not, I'll use my backyard. And…

Mayor Valdes-Fauli: Let's finish. Go ahead.

Mr. Aran: Yes, sir. And then right now currently, even UM and FIU doesn't have a hatchery to help kind of propagate this piece along for bivalves or filter feeders. So, in dream scenario, there

would be a place along the river that has this salinity regimen that we're looking for to make it work to help.

Mayor Valdes-Fauli: Thank you very much.

Mr. Aran: Thank you, sir.

Mayor Valdes-Fauli: We have a person that wishes to speak on this, Myra Jolie.

Mayra Jolie: Yeah, can you hear me?

Mayor Valdes-Fauli: Yes, please be brief. This is not a public hearing, but I'm letting you -- out of courtesy -- address the Commission.

Ms. Jolie: Oh, thank you for the deferment. How much is that going to cost us? That's the bottom line. Is this going to be mandatory for us living on the waterways or you're going to make it mandatory? That's my question. How much this endeavor and this project is going to cost?

Mayor Valdes-Fauli: I'm sorry, Ms. Jolie, but I don't understand a word you're saying.

Commissioner Keon: She's asking…

Vice Mayor Lago: I'm going to respond.

Mayor Valdes-Fauli: What?

Commissioner Keon: If it will be mandatory. I don't think anyone is making anything mandatory. I think this young man has come to us with a project that he is working on to explain the benefit

that may be available to the waterway. And he's talking about a concept, an idea. It's not anything forcing anyone to…

Ms. Jolie: How much is that…

Commissioner Keon: Do anything.

Ms. Jolie: Going to cost us?

Vice Mayor Lago: Ms. Jolie, I…

Ms. Jolie: How much is that going to cost us?

Commissioner Keon: I'm sorry. You sponsored it. Let Commissioner Lago address it. I'm sorry.

Vice Mayor Lago: As the sponsor of the item -- and I appreciate your concerns. Obviously, we want to limit as much cost during these very difficult times. This is not about a cost for the City. We're going to sponsor -- if anybody would like, they can donate to what he's -- to what this gentleman's doing. It's in private. There's no cost to the City. What he's doing is -- I asked him to come here because I was very intrigued, especially with the issues that we're having in the bay that this is one of many solutions that is not that costly. Other things are billions of dollars. He's talking about doing something that, number one, is not that costly and will help the environment. And number two, will restore habitats and an ecosystem that existed many, many years before we were ever here in South Florida. So, what he's asking for is just cooperation from the City because I've talked to a lot of residents and they love the idea. Residents are -- I've only met one resident who said they're against it, and again, they're entitled to that.

Ms. Jolie: Two, two. I'm the second one.

Vice Mayor Lago: It doesn't cost anything to anybody. We're just educating people that this is just an opportunity to do something good for the environment. And if you're interested, you can do it. If not, no one's being forced or mandated. We're not going to do this to anybody. It's just that if you'd like to grow oysters, we're offering an opportunity for residents who are environmentally interested to get involved and engaged and that's it. And I'm going to help him and donate with my own personal money to help this young man and his initiatives. That's it.

Mayor Valdes-Fauli: Alright. Anything else? Alright, let's go on to the next item. Thank you very, very much, sir.

Vice Mayor Lago: But I want…

Mr. Aran: Thank you for your time.

Mayor Valdes-Fauli: Very interesting concept.

Vice Mayor Lago: I want to say thank you…

Commissioner Keon: But I think you can…

Mayor Valdes-Fauli: Thank you.

Commissioner Keon: Work with Matt and talk with the biologist from FIU and see, you know, what the potential and possibilities for it is.

Mr. Aran: Excellent.

Commissioner Keon: Wonderful to see someone…

Mayor Valdes-Fauli: Thank you very much.

Commissioner Keon: Interested in (INAUDIBLE).

Mayor Valdes-Fauli: Very good presentation.

Commissioner Keon: Thank you.

Vice Mayor Lago: I want to say thank you for being here.

Mayor Valdes-Fauli: Very thorough.

Mr. Aran: Thank you.

Vice Mayor Lago: Thank you.