

**NARRATOR:**

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- People have a lot of other things to be worried about other than sea level rise that may take years.

But at the same time, we should not ignore things that we can see coming.

- And you can debate all day long whether it's man made or not. That is actually not the point.

- A huge part of our economic driver in Chatham County is our historic resources through the tourism.

- Businesses are just as exposed to climate change as individuals, as communities, as the environment.

- This is not like it's the land, the water, and the community. It's all of it as one.

- They're going to leave us puzzle pieces so we can complete the puzzle. But they're not going to leave us enough hints to finish it. That's going to be something that we're going to have to figure out on our own.

[MUSIC PLAYING]

- There's an old saying that the Stone Age didn't end because we ran out of stones. The Iron Age didn't end because we ran out of iron. And so forth and so on. We're now coming to the end of the Industrial Age, or some people call it the Hydrocarbon Age,

the Fossil Fuel Age. And that won't end because we've run out of fossil fuels. It'll end because human innovation and technology finds a better way, just as it did from the other ages that we migrated from and into.

So we're looking over the next 30 to 50 years at the end of the Fossil Fuel era anyway, regardless if there was climate change or not.

- The climate change issues that a place like Tybee Island are going to face in the future are really no different than the ones that they've been facing for as long as they've been there, which is these barrier islands of sand are dunes that move around. And once you build roads and houses and infrastructure on them, you tend to want to stabilize that sand dune. And they've done all manner of stabilization over the years. Groins, jetty, rip rap. Pumping sand and renourishment seems to be the main choice now.

But this is just an ongoing process. And with sea level rise, it's just going to have to continue and it's going to have to keep up, and the infrastructure on the island is going to have to keep up. The roads are going to have to be raised or a bridge made if you want to maintain the community and the economy of a vulnerable barrier island.

- Well, climate change, I've noticed, has changed drastically a lot in Savannah because originally, before we had the Truman-- I was here before a lot of the things were built-- and I've noticed that as more trees and things got cut down, the climate change drastically-- it was more hot, or we had less rain, more droughts. And it changed the

environment drastically because when I had a garden, it wouldn't function as well.

- If you want to continue to see your resources around you, which you love so much-- you moved here for this reason, or you've been born and raised and you want to see them protected-- we have to ensure that we are taking care of them right now for the long haul.

- The immediate challenge from climate change, for environmental justice communities in particular, is our lack of infrastructure to respond to the emergencies that will result from the climate changing.

- In order to make anything work, you have to have a partnership. You have to have the relationship between the federal government, state government, local government include community. And I'm seeing that people are beginning to talk about these issues much more easily than in the past. Some people get caught up on, well, what's the science saying? Is it really climate change? You call it what you want, but we know from a local impact it tends to have a major, major impact on our lives at the local level.

**MATTHEW GILLIGAN:**

The wind and currents from Hurricane Matthew were going from north to south. And it's just remarkable, as I explore these small islands around here, how much damage was done, how much shoreline was eroded, and how much debris was blasted through the remaining maritime live oak forest. A lot of people were cleaning-- have been cleaning this debris up from their marshfront property for some time on the north sides of these islands.

And so that was just a mild, you know, Category 1, 2, mild, glancing blow hurricane. A major hurricane coming ashore here-- think Katrina, think Sandy, think much, much greater rearrangement of the geography.

- We have to educate and work with the people themselves. That is where the challenge is, helping people understand that what they've known all along, what their granddaddies knew and great granddaddies knew, are changing not because they did something wrong, but because the world is changing.

- The unfortunate thing is that some people are so set in their ways, and then some people are so defensive based on some kind of bias that they have culturally speaking. So there is a cultural limitation, a cultural resistance when it comes to a certain reality about life as well. So I think the more awareness that is being created, the more the eventual possibility of getting people's attention towards the reality of the fact that it's a changing climate, and everybody's a contributing factor towards that.

- The issues of climate change are huge. Not only are they huge, but they are complex. We have to localize it because if you keep it in its comprehensive, big framework, folks will be overwhelmed and feel as though I can't do anything about that. But everybody can do something about reducing the carbon footprint and preparing people to deal with the reality of climate change, which is already with us.

**JACKIE JACKSON:**

Just taking into account that huge part of our economic driver in Chatham County is our historic resources through the

tourism, obviously. We're huge tourism community. But to ensure that we are basically taking into account the economic stability, we also have to ensure that our natural historic resources and all the wonderful resources that we have around us are also taken care of.

**STUART WILLIAMS:**

Climate change, it has the potential to wreak so much havoc on the velocity of capital that's found within a community-- which we're talking to economics here-- that it will decrease it to such a level that that community just cannot come back. It's on the precipice. It goes over the precipice. It cannot come back.

That is a severe example, but it can happen. We're seeing the first community in the United States that's actually had to be moved because of climate change was in Louisiana last year. They had to move the entire community.

So that's at one end of the spectrum. If you go to the other end of the spectrum, take a city like Charleston. In the 70s, Charleston got flooded on average four times a year. Last year it was 34 times, 34 days of business interruption, potentially 34 days of supply chain interruption, 34 days of potential lack of revenues from tourism. The result and the fact that that can be insurance premiums going up, the cost of business going up. So any time you have decreases in revenues and increases in expenses, generally not good.

So those are the types of economic effects that we could see of climate change.

**JACKIE JACKSON:**

When you think about drainage, you might not necessarily always think about the building side of it, you know, your infrastructure, where your roads are placed, where your larger neighborhood communities are placed. And we try and make sure that we're now really looking at where are our

wetland areas, even more so than in the past. Where will new development and impervious surfaces-- when they go down, where would they impact even more and more on our ground water systems, on our wetlands systems, the coastal ecosystem as a whole.

- Because in many coastal areas, and we know this, a lot of the issue of flooding is impervious landscaping completely. They just continually add asphalt, and you don't recharge the aquifer. Your runoff is full of contaminants. So now you're pushing all kinds of things, within 10 minutes, out to the ecosystem.

- The health impacts for the people on the ground from climate change will include a lot of ailments that relate to heat. Heat stress, strokes, respiratory diseases, digestive diseases, as well as an exacerbation of illnesses that already exist.

**JACKIE JACKSON:**

When you're talking about climate change and sea level rise, there is really, really a direct effect on our ground water systems here in the coastal community. And the Chatham County and coastal Georgia area, even portions of Florida and whatnot, we pull our drinking water from the ground, from the Floridan aquifer as a whole.

Huge system, and highly pristine system. Basically, all we have to do is add chlorine and we're good to go, which is almost unheard of in many parts of the country and the world. So when you start to see, as behind us, the Savannah River, which is directly synced up with where we're pulling our ground water system, you start to-- over time, you will possibly see an impact, you know, of climate change, higher waters, higher tides. And that water is going to push further up the Savannah River, basically. And then you can possibly

see an impact on your drinking water systems.

**MATTHEW GILLIGAN:**

Used to be fresh water springs all along the coast and in the water, even offshore, as well as a lot of freshwater input. Now, essentially, there's no fresh water coming subsurface because it's all been pumped for industry, municipal use, agriculture, and there's essentially no fresh water coming subsurface anymore.

Even during the 35 years that I've been here, the average salinities when I came were in the 22 to 25 part per thousand. Of course, it's much lower when it rains and it's much higher when there are droughts. But that was sort of the average. Today those averages are up in the 30 parts per thousand. And seawater, full strength sea water from the ocean, is about 35 to 36.

The best predictor of the distribution of marine life, things that live in the ocean, are temperature and salinity. If we lose salt marshes because we don't allow them to migrate upland because we've built those up, and our salt marshes get smaller and smaller, then the habitat, which is nursery for the larval stages of marine life, get smaller and smaller. And it only makes sense, as you decrease the habitat of a nursery, you're going to decrease the productivity in fisheries.

So between overfishing and loss of habitat, you know, we could see a real significant loss of harvestable, economically beneficial marine life.

- On the coasts of the United States, particularly in the South, with climate change impacts coming, that culture is threatened because why? It is so connected to the land. It is so connected to the nature. It is so connected to the waterways, and particularly our ocean.

There are ceremonies and rituals that take place from North Carolina coast all the way down to Florida. And with the sea rising in temperature, with the waves coming up in a much more powerful way, with the heat of the summers and the winter coming, our land is threatened. Our way of life is threatened.

So the culture, the rituals, the very fabric that coastal people live every day, the shrimping, of that will be threatened if we don't do something about global warming and climate change.

- Climate change has risks, rewards, and trade-offs.

What's a reward of climate change? Communities like Savannah that need increases in employment, if you're going to build a true resiliency program through infrastructure, that means billions of dollars of investment in infrastructure. That increases the velocity of capital in this community and leads to a great increase in the number of jobs.

So some people will argue that there is a reward to climate change, that there's a benefit to communities if they participate.

- Education is very important. Once they are educated they will understand. So that is still a gap between educated and uneducated people. Those who are educated, those who understand, they work very well. They understand what the climate is, what the climate change is. Otherwise, those who are not educated, they will create this noise all the time. But education the key issue.

Savannah State has played a vital role in creating these communities in our area for higher education.

- When we took the class Environmental Science, it really informed us, and it made us really want to change how things were going, not even just locally, but on a global level. It inspired us to go out there and do things to help. But I feel like some kids who haven't taken the class yet, they kind of don't know. So it's kind of hard to talk to them about it because a lot of people, when they're uninformed, they're not as open to the idea of solutions.

- My belief is we have to do a very deliberate, passionate, and rapid education of Gullah Geechee people. We must help them to get to the point where they are even more in control of their lives and their future. But in the process, they are learning how to cope with the day-to-day challenges and the larger societal and environmental challenges.

**HOWARD MORRISON:**

So I think we need to take people out after a hurricane, for example, and show them why trees fall over. We need to take them out and show them flooding and what causes flooding. We need to take them out and get them to experience the world themselves, for themselves, and not just what grandfather or grandmother, or mom and dad, for that matter, have to tell them.

**MATTHEW GILLIGAN:**

A government and leadership are elected by the people. And if the people are educated and understand, and are smart, they will elect people who are rational and look at the facts and make rational decisions. So it's simply a matter of education, in my view.

**RAMSEY KHALIDI:**

Just lead by example, and then create the space. I think we're a gatekeeper because we'll move on. Things will happen. And then we'll be out and they'll be in. I think that

having more exposure to it, and having the schools endorse it, and get kids out into field trips that are meaningful trips.

**HOWARD MORRISON:**

Well, I live on a farm. And I've got six grandchildren. And what I try to do as a grandfather is to take them out on the river and let them experience the river. Let them go out into the woods and experience the woods.

**MATTHEW GILLIGAN:**

I would get kids out in nature, and I would also equip them in the classroom early and often in earth systems sciences, applying what they learn in their science, and other things, too, you know, how the planet works.

- There's people that care about the earth now. But our generation, we have to be aware. And growing up, it just seems like we're not as aware as we should be, or we overlook the things that are going on.

Even our students and I, we go to community and teach the elementary school, middle school, and high school students what is involved in the science, what is climate, how it's changing now. They are more aware of it now than they were before.

**OLUWOLE ARIYO:**

We're going to have some students from middle schools, high schools, about 600 students. And they represent different communities. We're going to bring them together and then create some kind of greater awareness that we hope that they will also be able to go back to their community, and then speak to them.

There's a saying in my language-- I'm from Nigeria, Africa-- that if you really want a deaf person to hear a message, then say the message in the presence of his child. The child will be able to reach the deaf dads. This is what people are talking about when it comes to climate change. And then we hope

that such kind of outreach program is going to reach far more than we could ever think about.

**MILDRED MCCLAIN:**

We've got to educate our community and make them aware of what the science is and what their role is in addressing all of the impacts that will result, especially in terms of health, in terms of sea level rise, in terms of being ready to evacuate, knowing the routes, knowing who's going to be responsible for transportation, knowing the role of the fire department, the police department, the first responders, the neighborhood leaders. What is their role in terms of making sure that members of their neighborhood, their village will be safe and that their health will not be compromised?

**JACKIE JACKSON:**

Looking at our future, where it's headed, and the priority that is climate change along the coastal area, I have to pause because it makes you wonder why isn't it already our priority? You know, we're seeing the impacts as it is right now.

However, I do want to say I think it is going to become more and more of a priority, again, if only from the grassroots hearing that squeaky wheel, getting that up the layers of the elected officials, up to the state and federal level as well.

I think we're going to continue to broaden our research, to broaden what we're addressing over our time, this short time period. Honestly, I think it's going to take more of what we're doing now. It's going to take more of the outcry.

- Some of the solutions that we are looking at are how do we first of all make our community aware? So there has to be educational programs, activities, and initiatives.

- We have to develop strategies to build trust, confidence, and respect between that Gullah Geechee culture and the larger society. There is a

lot of mistrust because the culture itself, Gullah Geechee, is a very private culture. So building trust, building confidence, educating, and making people more aware of the generic nature of the threat of climate change and sea level rise.

It's not simply quote, the white man and his ways. It's the ways of the world that they must know and understand. But we simply can't announce it or put it in a brochure and expect people to believe it. They won't.

**DAVID RIVERS:**

I think, in any community, the key thing to develop trust is going out and engaging the community, be able to look them in the eye and tell them exactly what you think what the issues are, but more importantly, to get from them what they think, and to be able to listen, to engage, and to move forward. Too many times the lack of trust comes in when people are seeing that you are simply developing a policy to fit them, but you're not including them in the policy discussion. So any time we can include people in policy discussion on the front end, I think that you can sort of get the trust back to in check.

**MILDRED MCCLAIN:**

From the environmental justice point of view, we have to look at not only reducing the carbon footprint and debating about cap and trade-- those are very sophisticated ideas and notions-- but on the ground. What are the strategies, what are the actions, what are the programs that are going to be in place that's going to provide concrete and tangible assistance to environmental justice residents.

- I think we have to be willing to have honest conversations with one another. And a conversation is a two-way street. Yes, we can express our point of view. But it's equally, or maybe even more

important, for us to listen. We've got two ears and one mouth. And if we would do more listening and then thinking about the points of views of other people, I think we can eliminate a lot of the political controversy that we seem to be running up against.

**JORDAN BROCKINGTON:**

I feel like, as far as climate change, people should, instead of shying away from it, they should embrace it and try to work on it. And instead of trying to act like it's not going to happen, adapt to it, work around it, figure out how we can make things better as well as the climate changing.

- We have to look at the entire infrastructure of a society if we expect to continue to inhabit barrier coastal islands that, without human habitation, would migrate on their own all over the place, we have to be prepared for the expense and consequences to maintain infrastructure, roads, electricity, water, sewage, and all of those things in the face of very significant sea level changes.

- I think we're going to have to really use technology. We're going to have to step up our game. We're going to have to change what we have to a more eco-friendly approach. So we're going to have to give up things that we don't want to, like oil. We're going to have to stop using a lot of our limited resources. And it's going to be really hard at first, but once we get a good wake up call, I'm pretty sure a lot of people will be more open to changing their ways.

**STUART WILLIAMS:**

And we can always have policy disputes. We're not going to agree on different policies, whether you're on the Republican side of the aisle or the Democratic side of the aisle. What we should agree upon, though, is transparency, truthfulness, and

accountability at the political level.

**HOWARD MORRISON:**

One of my great frustrations is that we don't think long term, and we think short term. And I use the expression of this one letter in the English alphabet that I like to turn upside down. It's the letter M. And if we could get people to turn M upside down and get a W, and get people to look at not just what's in it for me, but what's in it for everybody.

And me thinking is very much of a today thinking. We thinking is thinking about other people, new generations for me. It's thinking about my children, six grandchildren. So I think you've got to try to get people thinking about we and not me.

And we, as humans in the United States, need to be thinking about how do we win the war. We may lose some battles along the way. We may have to move further inland. We may need to take other short-term actions that will help short term.

But long term, we've got to be thinking about what's going to be happening long term, and how can we take actions today that will impact the long term.

[MUSIC PLAYING]