

# Transcript Recording

## Quarterly Resilience Forum

August 3, 2022

**Marisa Gleason:** Good morning, everyone, thank you for joining us, we will be getting started in just a moment but first I would like to address some housekeeping items. The meeting today will be recorded. We kindly ask that you make sure not to share your screen and to remain muted until we reach the open discussion portion following each presentation. We encourage you to use the chat feature for any questions or information relevant to our discussion today. The recording and a transcript of today's forum will be available for reference on our website under the Coastal Resilience Forum tab and Grace will drop the link in the chat. (Link: <https://floridadep.gov/rcp/florida-resilient-coastlines-program/content/quarterly-coastal-resilience-forum>)

Good morning, everyone! Thank you for joining us for the third Quarterly Resilience Forum of 2022. Grace Altenburg and I will be hosting today's webinar. Our contact information can be found in the chat, feel free to reach out to us with any questions you might have about the Program and Forum!

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For the agenda today, we will have three presentations each followed by a Q and A session. After, we will end the forum with RF program updates and open the floor for any open discussion or forum member announcements.

**Grace Altenburg:** Before we dive into the first presentation, I would first like to introduce each speaker on the agenda for today. Please welcome Taylor Tucker, the Reef Resilience Coordinator with FDEP's Office of Resilience and Coastal Protection. Taylor will be sharing with us today the current restoration and resilience efforts for Florida's Coral Reef systems. Please also welcome Adrian Santiago Tate, CEO of HighTide Intelligence. Adrian will be sharing his work on incentivizing investments in resilience. And for our last speaker of the day, please welcome Daniel Dourte with the Balmoral Group. Daniel will be sharing information on the Statewide Resilience Dataset.

Thank you to all of our presenters for being with us today and to our attendees for tuning in. We can now go into the first presentation, Taylor would you like to share your screen?

**Taylor Tucker:** Hi I am Taylor Tucker and I am the Reef Resilience Coordinator for the Coral Reef Conservation Program at DEP. The Coral Reef Conservation Program coordinates monitoring and develops management strategies and promotes partnerships to protect coral reefs. The Coral Program is part of the Office of Resilience and Coastal Protection, which is divided into regions across the state, and we are a part of the Southeast region. As the Reef Resilience Coordinator, I am based out of our West Palm Beach office, and I am primarily responsible for leading the development and implementation of projects and initiatives related to coral reef resilience, stony coral tissue loss disease response, restoration, and adaptation, including overseeing our two citizen science programs and marine debris program.

For today, my talk will focus on an overview of Florida's coral reef, local threats that our reefs face, the coral disease response, including the process of rescuing and restoring the corals, citizen science programs implemented to help monitor the reef, and how you can help contribute in helping our local reefs.

Let's start with an overview of Florida's coral reefs. Florida's coral reef is an important aesthetic and economic resource that extends 350 plus miles from the Dry Tortugas in the south, to the St. Lucie inlet in the north. It is the only coral reef system in the continental United States, and it is home to over 40 species of reef building corals that provide shelter food and breeding sites for millions of plants and animals. In this map, coral reef and hardbottom are highlighted in orange, and the northern third of this reef system outlined in blue is called the Kristin Jacobs Coral Reef Ecosystem Conservation Area, or as we like to call it the coral ECA. It extends from the northern boundary of Biscayne National Park, in Miami-Dade County, to the St. Lucie inlet in Martin County. This area is managed by coral program staff within DEP. Biscayne National Park and the Dry Tortugas National Park are managed by the National Parks Service. The Florida Keys National Marine Sanctuary is co-managed between NOAA and DEP. Additionally, John Pennekamp State Park is managed by DEP.

The reef system within the coral ECA can be described as a series of linear reef complexes referred to as reefs, reef tracks, or reef terraces running parallel to shore. The inner reef, also known as the first reef, is around 20 ft. in depth. The second reef, or the middle reef, is around 50 ft. in depth. And the outer reef, or the third reef, is around 100 ft. in depth. Between each of the reefs there are large sand flats in areas separating the complexes. Within each of these reefs there are two categories of corals: stony corals and soft corals. Corals are animals, they are in the same family as jellyfish and anemones, but they have both plant and animal components. My talk today will focus more on the stony corals that excrete a hard exoskeleton, which is why they are considered reef builders.

The inner reef, or the first reef, is located closest to the shore and it is a very important habitat for juvenile fish as well as a variety of invertebrates. As you can see in the photo on the left, this is composed of soft corals, sponges, and pockets of branching corals like you would see in the nearshore habitats. And as I've mentioned there are also those large expansive patches of sand flats that separate the reef complexes. The photo on the right is an example of a sand flat.

The middle, or second reef, the density of both soft and hard corals increases and there is a greater complexity of organisms that compose this reef complex compared to the nearshore habitat. The photo on the left demonstrates the wide variety of soft corals that make up our reef. And the photo on the right shows the structural complexity that can be seen along the reef. This specific shot was taken within the Dry Tortugas National Park.

Lastly, the outer reef is the most continuous reef complex, extending from Miami-Dade County to northern Palm Beach County. It is more of a rocky, patchy reef filled with many giant barrel sponges, like the one pictured here on the left. The giant barrel sponge is the largest species of sponge, found growing on Caribbean coral reefs and can be wider and taller than a scuba diver. We are also lucky enough to sometimes see sea turtles swimming by as we conduct our research.

Switching gears from composition to importance. Southeast Florida reefs represent a significant economic resource to the region. Every year, Florida's coral reefs support 71,000 jobs and generates \$6.3 billion in sales and income in Monroe, Miami-Dade, Broward, Palm Beach, and Martin counties.

And those are just the numbers, it's not so easy to put a number on things, like the sense of pride and identity for if this reef is a part of where you live and way of life, the sense of awe and improved wellbeing of being in nature and sharing that with others, or even just seeing pictures or videos of the reef!

Healthy resilient coral reefs dissipate up to 97% of wave energy and safeguard against extreme weather, shoreline erosion, and flooding. Florida's coral reef provides more than \$355 million in flood protection benefits to buildings and protects nearly \$320 million in economic activity. It's not just about us though, fish depend on coral reefs, and mangroves and seagrass beds to maintain growing populations. They spend their life switching between these habitats and return to the reef when mature.

Given all those incredible values, you can see why we'd want to protect our reefs. There are policy and rules that protect reefs and services. These include the Florida Coral Reef Protection Act as well as the US Coral Reef Conservation Act and the US Endangered Species Act.

Now we're going to go over some of the challenges the reef has been facing, so you can see how important these protections are to have. The Coral Reef Conservation Program focuses on the management of the 5 key threats to our reefs. These include maritime industry and coastal construction impacts; lack of awareness and appreciation; land-based sources of pollution; fishing, diving, and other uses; and reef resilience.

As the reef resilience coordinator, the threats I work closely to manage include coral bleaching and coral disease. The threat I want to focus on today is one that Florida's coral reef has been experiencing since 2014, which is an outbreak of a lethal coral disease. Because of the severity and unknown characteristics and because we have not been able to identify the disease agent, we had to give it a name. Due to the loss of tissue, it was named Stony Coral Tissue Loss Disease, or SCTLD for short. It's different than any other disease because of the high prevalence, the high number of coral species affected, rapid mortality, high rates of disease transmission and the large geographic area that it encompasses.

I want to start at the beginning in 2014. Reports were first observed during the summer in Miami-Dade County, north of Biscayne Bay National Park. In 2015 it rapidly started spreading north into Broward County, and south into Biscayne National Park. 2014 and 2015 were also high temperature years, so the corals were already in a weakened state. In 2016 it spread through Palm Beach County and into the upper Keys. In 2017 it spread into the entire northern portion of the reef track to Martin County and into the middle of the Keys. In 2018, the disease continued to spread into the Keys and in 2019 the disease spread into the lower Keys. In 2020 it hit the island. And in 2021, unfortunately, the disease has spread into the Dry Tortugas National Park. Which means it is officially throughout the entirety of Florida's coral reef and continues to be present now in 2022.

For some context, coral disease is common for Florida. But this outbreak is unique in that prevalence outbreaks are very high reaching 65%-100% at some sites in some species. Here are some example photos of what the disease looks like. The disease is typically patchy with irregular lesions of tissue loss found on multiple individuals across multiple regions of an area.

So, what are people doing about it? DEP is co-leading the response effort with FWC, NOAA, and the National Park Service. We're working with numerous partners in federal, state, and local governments; universities, non-governmental organizations, and most importantly the south Florida community on a

multi-faceted response effort. To date, over 100 research projects have been funded and nearly 100 researchers are involved in the response in Florida alone. We've also started working with some international partners like in Mexico and the Caribbean because of the wide geographic outreach of this disease. There are 9 teams coordinating the greater response effort in addition to the steering committee which I have listed in light blue. Our priority coral disease response activity throughout all the teams includes coral reef surveys and fixed site monitoring to document the special extent or mortality rates and the species-specific impact; strategic sampling or monitoring analysis to identify the presence of pathogens potentially responsible for the disease outbreak; data management and epidemiological analysis to analyze relevant data sets and determine what factors influence disease progression; intervention experiments and field trials to assess the effectiveness of treatment techniques and prevent the further spread of disease; coral rescue efforts to preserve some of the remaining genetic diversity in land based facilities; restoration trials to determine where we can outplant new corals; Caribbean wide cooperation including means to limit further spread; and an effort to improve the overall environmental conditions.

The first part of the disease response that I want to focus on is treatment. While the cause of the disease is unknown, we are working on trying to figure it out. Several treatments have been tested to slow the progression. To date, the most effective treatment has been antibiotic amoxicillin mixed into the ointment. Which has shown a relatively high success rate by slowing the disease lesions and increasing the chances of survival. This paste is spread onto the disease margin like you can see in these photos here, between healthy tissue and area of tissue loss. One success story I would like to highlight, in the Dry Tortugas National Park all the park service staff came together, and they hand treated more than 6,000 disease affected coral colonies in only ten days.

The next part of the disease response that I want to highlight is our rescue mission. The goal of the Florida Coral Rescue Team is to rescue corals for the purposes of restoring Florida's coral reef. Rescuing corals consists of collecting both healthy corals ahead of the disease boundary, and survivor corals that remain in the areas that have already been affected by this disease. We hold them in land-based nurseries to prevent them from becoming infected to preserve genetic diversity and to propagate or breed them for the restoration effort on Florida's coral reef. The rescue corals will serve as the parents of future generation of coral offspring that will be propagated for use in restoration. To date, the Coral Rescue Team has rescued 2,300 corals of 28 different species, from 180 different reef sites. The rescue corals are all currently in 26 land-based holding facilities with 29 operating partners across 14 states. It is a very widespread effort, and if you are visiting New York City you can see this effort on a billboard in Time Square.

Lastly, I want to highlight our efforts to restore. One thing I can say for sure, is that Florida is a leader in restoration and out planting for over 15 years. Groups like the Mote Marine Lab, Florida Aquarium, Coral Restoration Foundation, the Reef Institute, Nova Southeastern University, and the University of Miami, have all been conducting restoration and have been very successful. Since the disease outbreak, a lot of these groups have been switching their focus from the branching coral, which are not susceptible to the Stoney Coral Tissue Loss Disease. And now they are growing more mound and boulder coral species, that have built a resilience to local stressors and play a critical role in allowing ecosystem services to be maintained for the future.

Moving forward with our coral disease response, we are focusing on expanding our infrastructure to have more holding capacity for corals and we're increasing coordination between land-based nurseries around the state. We are also restoring ecosystem services by out planting boulder corals, thereby improving reef resilience. And lastly, we are focusing on constructing a state restoration plan to have help guide coral practitioners.

Now that you have learned how we are responding to the local threat, let's talk about how we are able to monitor the reef. For some background, the Coral Program is responsible for managing over 100 miles of coral reef and only has a staff of about 15 people. So, although we would all love to be out on the reef all the time, it is impossible for us to know what's happening across the region, every day. Therefore, we rely on members of the community to let us know if they are observing anything unusual. We started our Citizen Science program, to allow people to report those instances so that we can coordinate our response.

Our main Citizen Science Program is SEAFAN, or the Southeast Florida Action Network. SEAFAN is a community-based reporting and response program for marine incidents, and we have recently expanded this program into the Florida Keys through the partnership with Mote Marine Lab. This infographic shows you the different types of marine incidents that can be reported through SEAFAN by local citizens. These include vessel groundings, anchor damage, fish kill and disease, marine debris, coral disease and bleaching, discolored water, harmful algal blooms, invasive species, thermoclines, and other incidents. To report an incident to SEAFAN no training is required, and you can submit one by visiting our report page at [www.SEAFAN.net/report](http://www.SEAFAN.net/report), or you can leave a voicemail at the SEAFAN hotline number 1-866-770-SEFL (7335).

Now I want to focus on the coral and disease bleaching aspect of SEAFAN. BLEACHWATCH is our second Citizen Science Program which focuses specifically on coral bleaching and disease. It was developed in 2013 to focus on bleaching, but in 2016 SEAFAN responded to the disease outbreak by expanding the BLEACHWATCH Program to including the observations of coral disease. To report coral disease or bleaching observations, a BLEACHWATCH observer training is required so please reach out to me if you are interested in participating in a course. They are held both virtually and in person, by myself or other BLEACHWATCH observer teachers. BLEACHWATCH observer training includes a history of the disease outbreak and observers are trained in differentiating between disease lesions from bleaching. Community observations of the disease have been paramount in understanding the spatial extent of the outbreak, as well as which corals are affected. These reports have also been helping to coordinate intervention and treatment of corals with this disease.

While our situation to save our reefs is urgent, everyone can still do their part to save this important ecosystem. Corals are resilient when given the chance and everyone can help, please visit our newly renovated website at [FloridasCoralReef.org](http://FloridasCoralReef.org), and take the pledge today to rescue and restore Florida's coral reef. Our website also includes more information about the reef itself, responsible practices, guideline documents, volunteer opportunities, virtual reality reef videos, teaching resources, and current news, as well as recent research surrounding coral reef ecosystems. I highly encourage you all to check it out and thank you for allowing me the opportunity to speak with you all today please feel free to email me with any questions as well ([taylor.tucker@FloridaDEP.gov](mailto:taylor.tucker@FloridaDEP.gov) (561) 681-6631).

**Grace Altenburg:** Great! Thank you so much Taylor for sharing your work on coral reefs, I am going to quickly turn it over to Marisa to start calling on raised hands. Again, you may use the raised hand feature which is in the top tool bar to ask your questions, or you can drop it in the chat.

**Marisa Gleason:** At the moment we do not have any raised hands or chat questions. Oh, we actually do have a hand raised. Danielle Irwin, if you would like to come off mute to ask your question.

**Danielle Irwin:** Good morning, thank you Taylor. I'm curious as to whether or not your program gets involved with receiving corals from a project in the coastal environment that has an environmental resource permit on it.

**Taylor Tucker:** All of our permitted projects go through our permitting team and also FWC coral management who coordinates with all of the permits. So, we are involved with that, but I am not directly.

**Danielle Irwin:** How often do you get involved in the review of applications that have coral impacts associated with them?

**Taylor Tucker:** I do help to look over from a technical review side, but mostly the permitting review process for corals goes through our Maritime and Coastal Construction Impacts Coordinator, Patrick Connelly. He is the one who is primarily reviewing those permits.

**Danielle Irwin:** Thank you.

**Marisa Gleason:** Alright and there are no other questions at this time.

**Grace Altenburg:** Great! Thank you, Marisa, and thank you again Taylor for joining us today. I would like to move on to our next presentation, Adrian would you like to share your screen?

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)) :** Sure thing! Good morning everybody, thank you Grace and Marisa and everyone at FDEP for having me today. This morning I will talk about why it's important to incentivize investments in flood resilience and some of the obstacles that stand in the way and to show you the solution we are building. My name is Adrian Santiago Tate, I am the CEO and co-founder of HighTide Intelligence. I wanted to start by sharing some of my backstory. When I was eight years old, my family moved to the Netherlands and my dad loved flow dynamics and structural engineering so it made sense to him that the first thing we would do is visit Oosterscheldering. He was a rocket scientist and he out "nerded" me completely but walking inside an elliptical storm surge barrier as a kid definitely had an influence on me. I lived in Holland for 10 years and the coastal Dutch engineering really inspired me. I was 18 years old, and I thought I would help bring these ideas to my home in Florida.

I went to Virginia Tech to study civil and coastal engineering, and we learned that coastal structures like levees are difficult to scale in a world of sea level rise. It's tough to copy and paste what the Dutch did with different cultures, and I wanted to understand how people in other countries were approaching flooding. I did a research trip around the world to study how culture influences coastal engineering and management. What impressed me the most on my trip was one village in Sri Lanka that was washed away by a Tsunami in 2004. The government gave the villagers free new homes in the mountains, and when I visited the new mountain village, no one was there. They were all back on the water.

So, I didn't find the silver bullet for flooding, on my trip around the world, but it became clear to me that you can't just separate people from water. After that, I spent a few years in a windowless basement of the geophysics building at Stanford doing research on nature-based solutions, and I didn't get much closer to finding a scale able solution to flooding. Then it hit me, that maybe the best approach wasn't trying to control water. If you have a home and you want to protect it, you can't just go out and build a levee. There should be something else you can do. So, why is it so necessary that we need to incentivize private investments?

For a long time, this country has handled flooding with public initiatives like the National Flood Insurance Program from FEMA, local and state flood plain managements, and the occasional infrastructure project from the Army Corp. Today the flood risk is rising fast because of stronger storms, sea level rise, development in flood plains, and other factors. Because of this rise in flood risk NFIP now has 20.5 billion USD in debt to the US treasury. After a similar amount was pardoned, it is estimated that there are between 3-4 million buildings that pre-date the Flood Insurance Rate Maps, known as pre-FIRMs, that need flood mitigation. Where the total cost at mitigating risk to all of these buildings is likely to be more than 700 billion USD.

In Florida we lead the nation with 600 thousand pre-FIRM buildings, and with the cost of mitigating flood risk to all of those, is \$120 billion. When we look at the recent trillion-dollar Infrastructure Act, we see 700 billion USD for Army Corp projects, 3.5 billion USD for FEMA FFMA grants, and a few billion here and there for a few other grant related programs like BRIC. If we compare the funding in this historic Infrastructure Act, to what is needed to mitigate flooding to all buildings we find that we are approximately 2% of the way there. At this rate, we would need 50 Infrastructure Acts just to deal with the pre-FIRM buildings.

The reason I think it is so important to incentivize investments in resilience is that the taxpayer can't do it alone. Let's now look at a couple case studies that play in. First let's look at this community that has not fared well with severe flooding. The City of Mexico Beach was devastated by Hurricane Michael in 2018. As we can see in this infamous image many of the buildings were washed away by the surge. The building front and center that famously survived was built to a much higher standards than the building code, for a price tag of \$600 per square foot. Obviously, that is not affordable to most people. So, what about insurance? It is estimated that only about 1/4 of all the buildings were insured and those claims were largely disputed by insurers leaving people waiting for payouts that only came if they were lucky. This community is barely starting to recover three years later.

Now let's look at an example of a community that has become resilient. The city of Mandeville, Louisiana, was flooded by Hurricane Katrina in 2005 by a nine-foot surge. There was 750 NFIP claims for 25 million USD. Shortly after, an initiative began to elevate the historic homes in Mandeville. But first these elevation projects were crude, and they received a lot of criticism, from the historic preservation, but over time they brought in architects and the National Park Service to endorse these practices with official guidelines for elevating these historic buildings.

In 2012 Hurricane Isaac brought another nine-foot surge. This time there were only 250 NFIP claims for 7.5 million USD. Last year, Hurricane Ida (2021) brought the third nine-foot surge, and while we don't know the size of the claims, there were only 59. Which means, almost 90% of the buildings in Mandeville, had been elevated above the 100-year flood. And the average clean up time after a flood is a week.

This tale of two cities is a sobering reminder, that investing in resilience early really pays off.

A few of you have probably heard the statistic that \$6 is saved for every \$1 that is invested for mitigation. In Mandeville's case, an affluent community came together and almost entirely mitigated flooding. Mexico Beach, a wealthy doctor built his home to withstand the strongest winds and the highest floods. The common denominator here, unfortunately, is that these solutions are available to the wealthy. They are not widespread and economically feasible or scalable.

Now let's imagine a world where any owner can easily invest in protecting their home from flooding. The biggest question we need to answer to get there is- how do we pay for this. So, if you're a homeowner you have three main options for funding your flood mitigation project. There are grants, there is cash, and door number three option- the gap. Typically, a homeowner will work their municipality to get grants. Mostly from programs like FMA, HMPG, and BRIC. And if you are with a municipality and are interested in applying for the competitive FMA and BRIC grants, there is a webinar this afternoon from the Florida division of emergency management ([floodmeet.com](http://floodmeet.com)).

When it comes to these grants, one of the challenges historically has been getting funds for disadvantaged communities. The problem is that they often do not have the capacity or resources to apply for these grants. For equitable adaption to take place- it is important to help these people access these funds. In total contrast to that, there will be those who can pay out of pocket. When it comes to any large trend like electric vehicle there are always early adopters. It is usual about 1% of people. Aris Papadopoulos, the author of Resilience, is in Miami Beach trying to inform early adopters so they raise their hands. He hopes that it will help to start the trend. If we say 1% of adaptation early adopters are paying cash, then 2% can be covered by the infrastructure act, leaving 97% to figure out. Sure there is more cash and grants out there. But there isn't enough grant money, and most Americans do not have hundreds of thousands of dollars in cash ready to dish out. Financing could be an option, if banks were willing to accept low loan-to-value ratios for mitigation projects. Which they haven't been up to date.

This could be changing, the STORM Act revolving loan program could in theory help provide low interest loans for mitigation projects. The Storm Act became law at the federal level last year. Since then, some states have set up their state revolving loan program like Virginia and Maryland. This half a billion dollars in infrastructure act was to get the program started. But at the end of the day, the banks need to buy in for the STORM Act to work. It is important for the state and the local government to be leaders in this initiative. The STORM Act has just started getting traction in Florida and hopefully will be able to start financing mitigation projects in the next 2-3 years.

So, setting aside this financing bottle-neck- What are some of the incentives for people to invest in resilience. For resilience to be an attractive investment a number of incentives need to be in place for property owners. Three incentives come up often: preserving property value, insurance discounts, and property tax discounts. The first and most important incentive is preserving the equity in your home. We did an analysis of sea-level rise on all properties in Florida. Found that approximately a million of residential buildings on land will be permanently underwater by 2100. It will be difficult to sell a house that is always underwater. Which means between now and 2100, one million property owners will have to figure out how to preserve their homes value or lose it. The key is to taking action at the right moment. Whether you are selling, buying insurance, investing in mitigating, or maybe moving your house. Which sounds crazy but you can do it.



Having the data to support your decision is critical. Another incentive on this list is related to property taxes. It is more of a policy question- to be brief we want to avoid a situation where people who makes a large investment are penalized with higher property taxes. Finally, the incentive that I find interesting and pertinent is the insurance discounts. It makes a lot of sense that if risk is reduced, the insurance should be reduced proportionately. What we found with the NFIP risk rating 2.0 is that this is no longer the case. The older under riding elevation projects were heavily incentivized and now they are not. It took a while to figure out why. It seems that though the incentive exists and the reading tables, the subsidy of NFIP cuts what would otherwise be the incentive to mitigate. If you would like to get into the weeds about this, you can reach out to me.

This example we gathered flood insurance quotes for a home in Ponce Inlet, Florida. This 17,000 square feet home is concrete block on a slab of 5 feet elevation. It's on the back of a barrier island on a canal. The NFIP quote came in at \$5,300. If the flood risk to that house was mitigated by elevating the house by 8 feet, the NFIP quote would go down to \$5,100. A cost-savings of \$200 is no reason to spend any amount of money on mitigation. However, on the private side insurer A is willing to insure the unmitigated property for \$2,500 and insurer B is willing to insure the mitigated property for \$800. For this property owner there is a \$2,800 incentive just for switch out of NFIP and an additional \$1,700 incentive for mitigating. While the discount for mitigating is not substantial here, the path of least resistance will be to switch to a private company. And when I talk to leaders in the insurance space, they all rave about the importance to mitigate risk in portfolios. They are excited about the idea of aligning flood mitigation with flood insurance. If these two parties share data, we might be able to create a path of least resistance that gets property owners to invest in mitigation.

This leads me to the last question- How can technology help with adaption? It is very difficult for the average American homeowner to make a proactive decision on protecting their home from flooding. It is not necessarily because the decision itself is difficult. But because there is nowhere you can go to get all the information that you need. You can go to a website to see the risk of your house on a scale of 1 to 10. Which helps if you are buying a home, but what do you do when you are a lucky owner of a 10 out of 10 property. It helps to know your risk, but you also need to know what your options cost and the return of investment of each one. You would have to talk to a lot of different people like contractors and insurance agents. And do some math to see if it makes sense. Most people would rather avoid making a tough decision than going through this trouble.

What about people working in government through this flood risk. They have to deal with time intensive outreach and engagement, lengthy grant applications, project management, and a lot more. There is friction and data gaps every step of the process. Data driven technology can streamline many of these obstacles to get us closer to scaling Florida's resilience both in the public and private sector. We can automate the most burdensome parts of grant applications and make that accessible to low-income communities. And get everyone the information they need to make a decision that they can just click on. It only works if every step of the way is easy and simple. We have been working on this problem for a few years at HighTide. I will show you the platform that we have been developing to address these issues. Okay, here on the left- we have a map that shows all the buildings and the town of Ponce Inlet. We can click the buttons on the left to select different combinations of sea-level rise and storm surge scenarios. We don't really see anything here until we start getting into the 50- and 100 -year storms. On the right here we can see the damage in dollars with uncertainties for every flood event. If we scroll down, we can see how risk is increasing over time due to sea-level rise. This is the average annual loss.

On the map, the risk is shown in color with red. Let's see what sea-level rise would do to the town of Ponce Inlet. Really not much happens by 2040; once we get into 2070 and 2100, most of the town is affected. If you zoom out some more, you can see the impacts on a block group scale. You can pan around the state and see what most people here already know- which is that a big storm in 2100 is bad news.

And I think what I realized a year ago, was that I didn't want this just to be bad news. We wanted this tool to allow anybody to get information and take some kind of action. The first feature we developed to do this is an elevation cost estimator. So, elevation was the first solution that we looked at but there are other things that we can do. Let's look at this building on mango street- almost 3,000 square feet home in a flood zone. Also, looks like slab on grade but the present moment it is exposed to 10-year storms, 50-year storms, and 100-year storms. In the future, it looks like that goes up. Let's see what happens if we elevate this house by 3 feet. Okay so the risk went down. The cost of elevating this house is almost 200 thousand dollars. And the benefit cost ratio for FEMA grant applicants is still not 1, which means this is not going to work. Let's say we elevate it some more (6 feet). We are now definitely ok with the Benefit cost ratio. But the risk- let's lower it down some more. Let's see what happens if we go kind of a little crazy here (10 feet). There we go! We are exposed to the 100-year storm, but the flood damage is actually kind of low. So that will probably work. So obviously there are still a lot of pieces to connect here- there's the flood mitigation, the insurance discounts which is a lot of different pieces, but this is the beginning. We can do this for all coastal counties in Florida. Let's go back to the presentation, so I have to acknowledge the amazing team at HighTide with me. We have Noah Dewar, Noah Davis, and Cristian Bader, these are all co-founders from Virginia Tech and Stanford. We are lucky to be supported by Stanford, TomKat Center, Microsoft, Echelon, Flood Mitigation Industry Association, and Deltares USA. Thanks again for having me here today and happy to take any questions. If you would like to reach out, there is my email ([adrian@hightide.ai](mailto:adrian@hightide.ai)).

**Grace Altenburg:** Awesome! Thank you so much Adrain for sharing your resilience work and your tool with us. That was a really great demo. So, am going to turn it really quickly over to Marisa. She is going to handle any questions. So again, if you have any questions for Adrian, please use the raise hand feature button or drop it in the chat. Marisa.

**Marisa Gleason:** Let's see- Heidi you can go ahead and come off mute to ask your question.

**Heidi:** Thanks. Adrain, I appreciate the presentation. I actually have a few questions, so I would love to hear more. You mentioned that you feel that the STORM Act is getting some more traction here in Florida. I would love more detail about what you see transpiring there. So maybe we will start with that, I won't give you all three. That is my first question.

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** So, I guess all I can really say is- without naming any names is that a few months ago when talked to people about the STORM Act nobody knew what it was. And now there is a lot of people who need to know what it is that are doing something about it or starting to get those conversations going.

**Heidi:** Okay, and then what are your plans with this decision support tool. Are you going to go national, is it just Florida, what does the future look like?

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** Yea, so I started with Florida because it is- you know it is where I live, where my family is, where I think it is the most pressing. I think you know building out the capacity- what I mentioned earlier, the capacity for lower-income communities to be able to get those grants and understand the risk and all those things is really important. We are currently working on a socio-economic impact analysis that we are doing for the whole state of Florida. So, this was the peer-reviewed methodology that was our starting point that led to creating HighTide. So, starting with Florida focusing on socio-economic impacts and then scaling beyond to other places.

**Heidi:** Thanks, I see others have questions so I will hold off.

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** You can email me.

**Heidi:** Okay.

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** Thanks.

**Marisa Gleason:** Alright we have a couple questions in the chat. The first is, what sea-level rise scenario is modeled in the HighTide Scenario? the NOAA intermediate 2022?

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** Yes, I mean we can do all of them. The tool is built flexibly so we can just plug in any sea-level scenario, any set of storm surge scenarios. Really people seem to have their preference's so we can do whatever people like.

**Marisa Gleason:** You mentioned funds being available for municipalities. Can you share more information or a link?

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** Right so there is quite a lot of funding available at the federal level through competitive grants programs like FMA and BRIC. So, there is a webinar this afternoon that you can go to- to get more information. And I can email you the link, if you email me and you can also go to floodmeet.com just to see the webinar. It will redirect you.

**Marisa Gleason:** And what is the cost of this software?

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** Oh, that is a good question, that is definitely one you ask by email. But the whole point of this is that it is much more affordable than hiring an engineer firm. We would much rather work with the engineering firms who produce all the great data and then use that- plug that into the platform. So, a lot of these tool are just available on a large scale.

**Marisa Gleason:** And the FEMA hazard mitigation process is very complex, are they paying attention to your efforts?

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** We're pretty small. They will probably be soon. But I think before going forward large kind of- federal projects. We are really just focusing on building up these cases, the municipalities and then moving up to the state level.

**Marisa Gleason:** Does the tool consider future precipitation trends? And is the tool freeware or is there a cost to use it?

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** Okay so, one of our next steps is to expand from just coastal areas to also inland areas. Which is when we will do all the precipitation modeling. And we will have a freeware version of this tool, but we will also have a paid version. So, there will be something that

anyone can use to help in their decision-making. But the early adopters that I mentioned earlier, people need to know whether if they are good candidates for making these investments or not. So, there will be both versions, a freeware and then a paid version.

**Marisa Gleason:** Great! Thank you. And lastly, can the tool be customized based on localized data depending on the subscription cost?

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** Absolutely. That is kind of the whole- the way we built it is so that it can be customized for different municipalities. Based on what they assess they have available, what kind of quick questions they have, what use bases matter. So, definitely.

**Marisa Gleason:** Great, Thank you. I think that is all the questions we have for now.

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** Thanks everybody.

**Grace Altenburg:** I do see one last question Marisa. But we can circle back to it if you want.

**Marisa Gleason:** We can go ahead Adrain, if you are alright with answering one more question.

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** Yea, sure thing.

**Marisa Gleason:** what do you recommend for areas permanently inundated by sea-level rise? Should people raise their homes?

**Adrian Santiago Tate ([adrian@hightide.ai](mailto:adrian@hightide.ai)):** That is a very fun question. I feel like there is just a whole spectrum of options here. Obviously, some places will be protected by levees, some places will elevate homes, and maybe people will want to live something that looks like Venice, maybe they won't. Maybe they will want to move their homes somewhere else. And I think there is just a lot of people out there and a lot of preferences- and you know maybe in some places we will elevate a lot of homes. But I think, you know if I was- if I am the crystal ball who tells the future then I would think there is maybe two to three decades where we are elevating a lot of homes and then after that we are starting to move homes.

**Grace Altenburg:** Awesome, thank you. Thank you, Marisa, and thank you Adrian for being with us today. We really enjoyed this discussion- so thank you. I would now like to move on to our final presentation. Daniel, would you like to share your screen.

**Daniel Dourte:** Sure. Okay, thank you. Can you hear me okay?

**Grace Altenburg:** Sounds good.

**Daniel Dourte:** Alright! I am Dan Dourte. I am an engineer with the balmoreal group and today I am going to be talking about the statewide resilience dataset kind of focusing on the- the outreach and local asset data compilation part of that.

So, the goal here was to- it was in part of a big data collection and data organization exercise. So, trying to document the types and status of flooding and sea-level rise, vulnerability assessments, or vulnerability assessments by some other name that have been completed by cities, counties, or planning organizations, or water management districts; trying to figure out who around the state has done some type of vulnerability assessment. And from those we want to get the data behind those, so retrieve the data and metadata developed for those vulnerability assessments. And we also want to document the

spatial data from those. So, we are sort of narrowing down the data types here and we want to from all that spatial data look at the- just collect, consolidate, standardize, what we are calling the locally provided critical asset data. So that what we end up with- for DEP, the department here, is spatial data set of all the locally provided critical asset data. That have been developed for or sort of compiled for some type of flood risk assessment or vulnerability assessment.

So, the statutory definitions of- under the statute that covers the DEPs rule and statewide vulnerability assessment and dataset behind that. The statutory definitions of the critical asset here are important so we are looking at these four groups: transportation assets and evacuation routes, critical infrastructure, critical community and emergency facilities, and natural, cultural, and historical resources. So, I will just walk through each of the four if you are not familiar with these so you know what we are talking about. So, under the first group, transportation assets, we are looking at these eight-asset types. So, this asset group is defined in statute and the sort of subgroup, or these asset types are also defined by statutes so there are eight of those under the transportation assets. Under critical infrastructure, wastewater, storm water, drinking water down to disaster debris management sites; there are nine of these asset types.

The third asset group type here is critical community and emergency facilities. There are 16 of these asset types: schools, colleges, community centers, hospitals, fire stations, storm shelters, state government facilities. I will give you a minute to kind of cruise the list here. So, the point of this is to show what types of assets we are talking about. And to make it clear that not all infrastructure- not all the build environments would be defined as a critical asset here, but much of it is.

And lastly, the fourth asset group has six asset types under conservation lands, parks, shorelines, you can see the list there. So, in total there are thirty-nine asset types under four main asset groups defined in the statute. So, we are trying to put together a dataset of all those asset types across the state starting with what we are talking about here, the locally provided assets. Kind of mostly from cities and counties.

So, look at the process we are starting with who has completed some type of vulnerability assessment. Sometimes- sort of recently, could be a resilience plan, adaptation plan, something looking at sea-level rise, surge, rainfall, a combination of those. For those who have completed that, we want to actually make sure the department has a record of the- those outputs, the studies, and also the spatial data, so we are getting the assessments, the GIS data. And ultimately combining and standardizing just the critical assets from the GIS data provided from- by cities and counties.

So, this started with a lot of outreach focused- well statewide but we tried a little harder on that outreach for coastal cities and counties. To make sure we knew what and if anything, has been completed. So, there were bulk emails, targeted emails, surveys, phone calls; so, some of you- some of you on this call have probably answered the phone or answered our emails. So, thanks for that, thanks for providing data. So, we were reaching out to people and saying what have you done in the vulnerability assessment realm and if you've done some type of analysis, study, or report. Please deliver that data to us so we can compile it for the department. We setup just an online location to be used to collect all of the spatial data and all the reports.

So, the outputs here in some we were tabulating some of the key variables. I will walk through that in a minute. Key variables from risk studies, vulnerability assessments. We put together metadata for all the

GIS data provided. So, the department ends up with all the vulnerability assessments and GIS data being compiled and also a subset of that GIS data, just the critical asset data being combined into a single-single geodatabase. So, for- so now we are talking about the- the studies delivered by some cities or counties in most cases. And so, we tabulated just these few key variables from those. For example, the sea-level rise scenario name, the years evaluated, whether they are looking at 2040, 2060, 2080. Which years they were looking at flood risk for. If they looked at storm surge, which storm surge categories; if they looked at rainfall, what types of design storms were used. If compound flooding was analyzed, there is kind of indicator variable for that. And some other supporting data so- so that someone could get a sort of a quick picture of all the studies that have been completed around the state or all the studies that are in the works. You know which of those- you know if you look at a particular sea-level rise scenario- you know how many folks use that sea-level rise scenario at this time-period. So, we put this all- this is just sort of a table and an online dashboard that you can get to from this link here.

This again- this is just summarizing all of the locally provided vulnerability assessments or resilience plans. In total there were I think of as today- around 85 or 86 total studies here. It is filtered by those who have completed some type of- we call these FRAs, Flood Risk Assessments, just have an umbrella over stuff like this that has a variety of different names. So, if we are looking at just those who looked at 2040 and 2070 as their sea-level rise years that were analyzed. That list of you know 85 goes down to about 46 cities or counties looking at that particular time period. So, you can kind of query this interface for any combination of- you know what the study type was, the vulnerability study status, you can see those that are pursuing funding, or those that are currently working on a study, those show up in that kind of filter pane there.

And the most of kind of outreach and data collection was done in November and December and a little bit in January. So, November and December of last year, January of this year. And so, this is going to be updated in the coming months for those that have now completed the study or updated a study. So, we will be doing sort of another outreach effort to collect any newer studies, or you know stuff that was missed in the first round of trying to reach out and get data from folks.

So, switching gears a little bit, we are looking at all the vulnerability assessments from those we are trying to get the GIS data that was behind those. So, it's the kind of the amount of data- well, the number of organizations that were able to provide that data gets a little bit smaller with each step here. So, we are looking at all the flood risk assessments, vulnerability assessments, something like 80 organizations. Of those, about 50 organizations were able to provide the actual spatial data. Partly because it wasn't always a like required deliverable from whomever did the study. Sometimes it was you know a contractor and it was- you know this was done 2 or 3 years ago and they weren't able to get the data when they asked for it more recently. And so, there is a smaller group of that- all of the spatial data that came in and even a smaller group of those that are critical asset data as defined by statute.

And this is what- so that kind of illustrates the path of how we are going from studies to critical asset spatial data. And so, we did for all the spatial data delivered there's in total across 50 sum organizations that delivered GIS data. We looked at over a 1000 spatial data layers to develop consistent metadata for each data provider. So that covers these things here, you know what the data is about, credits, contact name, and the- there's a sheet in each metadata file that includes all the GIS layer names. Sometimes you know a city would deliver data that has 2 or 3 different spatial layers. Sometimes there were 50 or 70 different spatial layers providing different flood risks for different types of assets or different

combinations of sea-level rise scenario, and sea-level rise year, different search combinations, or sometimes in different layers so that's all kind of captured in the metadata summaries.

And so, from all that spatial data that some of that includes stuff that wouldn't be defined as a critical asset by the statute that we looked at in the beginning. Here some of it is flood extent layers or grided flood elevations. So, we are trying to subset that to end up with just the critical asset data from local vulnerability assessments as sort of one resource to be used in the statewide vulnerability assessment. So, like I said, we subset all of the locally produced data just to those that would be- that could be described as critical assets and we- so all these data is going into a single geodatabase so we renamed and reclassified the existing data to align with the 4 asset groups and the 39 asset types from statute. So, we are using this kind of minimum data attribute scheme here. So, we have the name of the entity, the elevation of the asset if that was included, owner or maintainer, the name and asset are not the- are not statutorily described. That just provides some additional detail of possibly about pipe size or street type for the name. For example, the asset is some other additional description of the- you know what the asset is. And asset type and asset group are- are the have been standardized to the statutory definitions.

So, we end up with a geodatabase with just three feature types: lines, points, polygons. There you see the kind of sample size, or number- number of total assets. So, there is about 300,00 lines, points, or polygons all together across 31 cities or counties that had- that could provide GIS data and had critical assets within that data. That is also- we also put that in a- you know its tabulated, it's in this online interface so you can see, sort of filter things by asset group or asset type and see where and what types of critical asset data are available just from locally provided- from local data providers for assets that were analyzed in the context of some flood risk assessment/vulnerability assessment.

So, the- what we are working on now with DEP, also their data analytics vendor SAS and the USF flood hub is to- so this you can gather that this is not a statewide coverage. And so, we are also putting together statewide datasets to cover all 39 of those asset types to assemble- to in part assemble these statewide critical assets dataset that will be used in the statewide vulnerability assessment. So, we are combining a bunch of different layers from different agencies around the state. It's you know largely existing data that we are just compiling to line up with these 4 asset groups and these 39 asset types. In some cases where there is not overlapping data in the statewide set and local dataset, we will bring in some of the locally provided asset data that will also be added to that statewide dataset. So that's the work that is ongoing and will be completed around the middle of next year. There should be a statewide critical asset dataset so- May or June of 2023 we are looking at having this- having this completed.

So, if you have any data source recommendations feel free to email me or DEP to point us to those. And if you have any questions, please do you know ask them now or reach out.

Like I said we will be doing another round of local asset data collection for those who have recently completed assessments that might have new spatial data that we want to make sure the department has. Well, you might hear from us from the future. So yeah, happy to take any questions if there are any.

**Marisa Gleason:** Yes, we do have a few questions in the chat. Eddy did drop a link in response to two of the questions, but you might have a little more to add to them. The first is, of we haven't delivered our studies, should we still do so? If so, how?

**Daniel Dourte:** Yes. You- we would like you to do so. If you could email me. I'll put my- or if someone, maybe Marisa or Grace if you wouldn't mind putting my email in the chat. Please email me and I'll send you a link, it will be a SharePoint link. Where you can kind of just drag and drop your study and also your GIS data if you have it in a place where you can get to it. Yeah, that would be great.

**Marisa Gleason:** Yes, we can certainly add your email into the chat. The next question is will you accept asset data from a partially completed VA, for instance if we already have a countywide inventory of infrastructure assets? Also, what if we miss the for boat uploading models collected?

**Daniel Dourte:** I don't- you didn't miss the boat. You can definitely still upload your spatial data or studies. I'll- if you contact me, I will provide you a link to where to provide that information. And to the question about- can you say the first part of that question again Marisa.

**Marisa Gleason:** Yes. Will you accept asset data from a partially completed VA?

**Daniel Dourte:** Yeah, for sure. The- I mean, yes. In part because the location and attributes of those assets aren't going to change as you complete your vulnerability assessment. Most likely, there will be some- probably some moving around in the flood elevations as models are refined there. But the main thing, will be where those assets are and what they are. Because you know USF- USFs Flood Hub will be kind of in partnership with the department will be working through how you know the flood risk part of; How flood risk overlays with those assets so that you know that may change. So, I would say yeah for sure, if it is partially completed, we still know what the assets are and where they are so I would say that's still valuable to have.

**Marisa Gleason:** Alright, the next question. If shorelines are critical assets, could this include residential property along shoreline?

**Daniel Dourte:** I would say no. Those are not- they are not critical assets in how the statute would define them. So, there is stuff that's in the- you know, general audience interpretation of critical asset there is stuff that's critical to a lot of people like their house, or you know their septic tank, or something. But in terms of how the statute define critical assets- residential stuff would not be covered.

**Marisa Gleason:** Okay. And will you have a determination of regional significant assets versus critical assets as defined by the statute?

**Daniel Dourte:** Yes. Yeah, that's a great question. And yeah, we will be using the statutory definition of that to have an indicator of those that are regionally important. Yeah. As-

**Marisa Gleason:** Have you obtained- oh I'm sorry, you can go ahead.

**Daniel Dourte:** No go ahead, that was just like reading the next chat question but that's not the next one.

**Marisa Gleason:** Have you obtained data from the South Florida water management district critical infrastructure including pumps, gates, canals, this is under the stormwater asset category.

**Daniel Dourte:** We- no. We don't have that yet in our asset- in our like local asset data. So, we- that's something we will work with the district to add. We did get a lot of flood risk data from South Florida water management district the- a lot of that was grided data. But the actual asset locations, we will be coordinating with them to get those.



**Marisa Gleason:** And next question, I know you mentioned but could you elaborate on how the Florida Flood Hub work will be integrated into the statewide dataset? Are they focused on climate hazard data or the critical assets data aspects?

**Daniel Dourte:** They- someone from DEP could chime in here to put a finer point on it. But they will- they will sort of be the brains behind how flooding and flood risk is defined. They won't be as much in charge of collecting critical asset data. But from the critical asset data, determining elevations at those locations and determining you know water elevations at those locations for different sea-level rise and surge combinations. They will be sort of providing the framework for that. So, for example, you probably- you probably know that most of the critical assets from statewide data sources or from local data assets often don't have an elevation assigned to them. So, the methodology for that we know where a drinking water facility is, but it might just be a point on the map or a polygon on the map. And there are different parts of that drinking water facility that have different elevations you know. The pump is at a certain height the generation is at a certain height, some different buildings, floor elevations are at a certain height. And so there needs to be a methodology for assigning elevations at critical- at these critical asset locations that will be an important part of the risk assessment. So, that is something that the Flood Hub will be helping with.

**Marisa Gleason:** Okay, next question. Did I miss this on my critical assets list? Will EV, electric vehicles, infrastructure be considered? 5 billion in pipeline coming from federal for EV infrastructure nationwide, plus 100 million supplemental. Florida is second in the nation for EV purchases. FDOT has an EV masterplan for Florida with a focus on evacuation.

**Daniel Dourte:** Yeah, good- good question. I don't think charging stations are covered under the critical asset list but that- you know that might change with future refinements to the statute. If anyone else knows more about that, feel free to chime in. But under the current asset types list they- they don't show up there.

**Marisa Gleason:** And could you please share more examples of compound flooding risks being estimated as a part of VAs. Have you received flood and overland inundation, grided data representing compound flooding risks.

**Daniel Dourte:** Not very often, the- you know the modeling to do that kind of compound flooding is a lot more difficult to do on a big scale. So, I'd have to look- I'd have to look at the dataset just a handful maybe just a couple of folks have looked at compound flooding. Yeah, so it's not- it's not done very often because it's difficult to do. You know you are looking at a different tailwater condition, a different sea-level rise height and- and you know some kind of design storm, some type of rain driven flooding together and that's- it's not done very often.

**Marisa Gleason:** Alright, and how will you handle updates to datasets? Are you including fields for data source, date, and accuracy level?

**Daniel Dourte:** Yeah, we do have fields for data source and date. We don't have accuracy level described. I am assuming that is related to like some accuracy on location or possibly elevation. So, if that's- if that accuracy level shows up from a data provider that could- our dataset could accommodate that. But probably I don't know that the department is going to try to make an accuracy level

determination on its own or in collaboration with its partners because I don't think there is enough like supporting info to do that.

**Marisa Gleason:** Alright, and lastly how are you dealing with critical asset data that is considered confidential by local utilities such as drinking water infrastructure?

**Daniel Dourte:** Those- those can be and in some cases were sort of withheld by data providers. There were some folks we talked with who asked about that and they- they withheld that data. In most cases the- sorry someone muted me. In most case, the- the type of data provided is publicly available data like you might be able to see you know on a map or looking at parcel data. So, it doesn't identify like the particular sensitive infrastructure at a drinking facility for example. So, but it can be withheld if a data provider doesn't want a particular type of asset shown. They can just let us know or they can you know let the department know or just withhold it when they are- you know pull those features out of their spatial data when they deliver them.

**Marisa Gleason:** Alright, well I believe that is all the questions we have for now. If anything else comes up, we can always circle back to you. And thank you so much from presenting on the dataset. We will move on to grace.

**Grace Altenburg:** Awesome. Thank you, Marisa, and thank you Daniel for being with us today. So, Krista if you don't mind sharing our program update slide. Wonderful! Okay so really quickly I just want to get into some Resilient Florida program updates. The RF team will be hosting another Q&A session on August 12, at 2 PM eastern time. We can drop the registration link in the chat.

Do not worry if you are unable to join us on August 12<sup>th</sup>. We will still be hosting a second one on August 16<sup>th</sup> at 9:30 am eastern. The registration link will also be found in the chat. The Resilient Florida Program portal is still open for implementation projects and more information can be found on our Resilient resources page. Which includes documents to help you in the application process. As well the Resilient Florida program planning application portal has reopened. Both planning and implementation applications will close on the September 1<sup>st</sup> deadline.

But please reach out to [REsilience@FloridaDEP.gov](mailto:REsilience@FloridaDEP.gov) with any questions. Or you can attend our Q&A session to ask our staff.

On the rulemaking forefront, rule 62S8 which contains criteria that will be used to rank implementation projects has an effective date starting August 22, 2022. So, if you have any questions about the rule or the rulemaking process, please reach out to Krista Shipley, our planning consultant for our program. Who has helped lead this process along. And I will include her contact in the chat. Alright, I am going to return it back over to Marisa to close us out with any forum members updates.

And if there are still questions that you might still have for our speakers today. But I would like to thank you for attending the 3<sup>rd</sup> quarterly resilience forum. The next forum will be held on November 2<sup>nd</sup>. So, stay tuned for more information. If you would like to present at one of our upcoming Resilience forums, please fill out a speaker request form and that form can be found on our forum webpage that is linked in the chat as well. So, thank you again for your participation. And I hope you have a great rest of the week.

**Marisa Gleason:** Thank you Grace. And we still have some time left so I would like to open the floor up to our attendees. If you would like to give any updates on your resilience efforts, programs, initiatives, or outreach. You can come off of mute, use the raise hand feature or drop it in the chat.

**Eddy Bouza:** Hey Marisa, I'll- I'll kick off the open mic session. Hey everybody this is Eddy with the Resilient Florida Program. Just a couple more highlights on some of the updates. The portal being open is obviously our biggest announcement. So, we just wanted to let everyone know there is a new website/portal application process this year as opposed to what you might've used last year. If you're a previous applicant. So, it is a different site. So, don't use any saved favorites, or anything. And contact us if you have any trouble logging in or if you need to add some contacts, we can help with that too. We do have a pdf version of the implementation project application, but the application is all online. So, you can create an application, save it, and return- return to it later. We're currently working on some functionality to allow multiple users to work on the applications together. But I don't think that going to be in before the deadline this year. So it is that one person that creates it will- will have the draft in their account section. Please don't wait until the last minute to start your application, to put the applications in. We found in past portal opportunities- you know windows of opportunity we get a lot of phone call and emails in the last week. And you know sometimes it just gets hard to help everybody before the deadline.

So, please please please try to at least get in there. See if you are going to have any trouble, look through the application itself and try to contact us soon. And also attend those Q&A sessions, you know armed with questions and information so that you are familiar with the website. So, we can help your specific issue. We are also soliciting you know projects for pre-construction activities for financially disadvantaged communities. So, we were appropriated about 20 million dollars that can go towards those types of activities or those disadvantaged. So that can be anything from site work, to design, planning for projects, we really want to emphasize helping out those communities. So, if you are in one, know somebody in one, have a client that's a disadvantaged community, contact us so we can help you get access to that- those funds. So, thanks for that, and now we will just open up the floor if anybody wants to give any updates about what they're doing, or upcoming meetings, or presentations. Feel free to jump right in.

And the last thing I did want to mention was- there was a comment about the EV stuff in the chat. There could potentially still be some wiggle room to so if- if you guys- if a local community feels that they have critical infrastructure that's not specifically listed in the statute, we can review that. To determine-

We wouldn't necessarily restrict you from including those types of facilities in your assessments. Just because it is not in statute doesn't mean that it doesn't have to be evaluated. So, if you could- you know if you did evaluate those types of facilities as vulnerable, they would qualify for future funding even though the statute does not necessarily define it as critical. It might not get all the points, or we also have some interpretations that the words including does not necessarily exclusive to what's listed so we can always evaluate that statute language with our program attorney. Hank, did you want to jump in?

**Marisa Gleason:** Hank, I think you're muted.

**Eddy Bouza:** Some kind of double mute situation.

**Marisa Gleason:** If you would like to drop anything in the chat, we can always read that out for you.

Alright, but if there is nothing else left to share at the moment, that will conclude our 3<sup>rd</sup> quarterly resilience forum of 2022. I would like to thank our presenters for sharing their resilience efforts and would like to thank everyone for joining us today. Again, if you have any additional questions or joined us late, we will be circulating the event recording and transcript, along with the presentation materials for your reference. Please do not hesitate to reach out to either myself, Grace, or our general inbox at [Resilience@FloridaDEP.gov](mailto:Resilience@FloridaDEP.gov) . Thank you again for your support and be on the lookout for the next quarterly resilience forum. And have a wonderful weekend.