



TRANSCRIPT

NOAA releases plan for responding to stony coral tissue loss disease

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Hosted by: NOAA National Ocean Service Public Affairs

[NOAA to release response plan for coral disease](#)

[NOAA releases stony coral tissue loss disease response plan](#)

00;00;00;08 - 00;00;20;15

Thank you for standing by. All participants will be in a listen only mode until the question and answer session. During that time, if you'd like to ask a question, please press star one. I'd like to inform all parties that today's call will be recorded. If you have any objections, you may be disconnected this time. I'd now like to turn the call over to your host, Jennie Lyons.

00;00;20;16 - 00;00;45;16

Good afternoon, everyone. My name is Jennie Lyons, and I'm with NOAA Public Affairs. I want to start by thanking you for joining us on the call today. We're here to announce a new plan for responding to stony coral tissue loss disease. To explain today's news, I have the privilege of introducing our speakers first, sharing the meat of the information as Jennifer Koss.

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Jennifer is the director of NOAA's Coral Reef Conservation Program. She's going to provide a brief summary of the news, and then we will open for questions. Also on the line to help answer your questions are Caroline McLaughlin, National Coral Disease Coordinator at Florida Sea Grant, and Andy Bruckner, research coordinator at NOAA's Florida Keys National Marine Sanctuary. You can find specific name spellings and title information for our experts on the [media advisory posted at NOAA.gov](#).

00;01;17;05 - 00;01;41;16

Just a reminder that this call is for working media only. If you are not a member of the press, you are welcome to listen. But please do not ask questions. This time is reserved for reporters. With that, I'm going to turn the call over to Jennifer. Jennifer, please go ahead. Thank you so

much. Good afternoon, everyone. As Jennie mentioned, my name is Jennifer Koss and I'm the director of NOAA's Coral Reef Conservation Program.

00:01:42:09 - 00:02:05:22

Today, we announced a plan to guide future actions to treat and prevent stony coral tissue loss disease. Scientists first identified the disease in 2014. It has since infected more than 22 species of reef building or stony corals in Florida, the US Virgin Islands and Puerto Rico. And it continues to spread across the Caribbean. At least 25 countries and territories are affected.

00:02:06:02 - 00:02:34:27

I just returned from a trip to the Indo-Pacific, where there is growing awareness and concern about how to keep the disease from reaching corals there. Let's start by defining what the outbreak is. Stony Coral tissue loss disease is a highly infectious, often lethal disease that has devastated coral reefs throughout Florida and the wider Caribbean in recent years. First detected off Miami's coast in 2014, the disease affects many important reef building coral species and has high rates of mortality.

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Once infected, corals begin to lose living tissue and many will die within weeks to months without active intervention. This may be the most lethal coral disease ever recorded. There are several things that make this outbreak unique. For one, we see high death rates. It also progresses rapidly. Once infected coral colonies typically die within weeks, two months, as I've mentioned.

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We also see quite a large geographic range of this sickness. It spans the Florida reef tract to the Yucatan Peninsula and all the way to the Southeast and Grenada. The disease also affects corals for an extended period of time. And unfortunately, as we've already noted, the number of coral species vulnerable is significant. The plan announced today promotes actions that help scientists study potential causes of the disease, as well as how it spreads.

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One of the hypotheses is that ballast water from ships may be moving the disease. If that's the case, we need to know that in order to identify high risk locations such as ports and vessels at risk. The research we are talking about will also help scientists develop new treatments and diagnostic tools, as well as evaluate the vulnerability of Pacific coral species.

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While this disease currently only exists in the Atlantic and Caribbean, this disease has a potentially global threat. NOAA is working to prepare Indo-Pacific communities to respond to the potential spread while at the same time minimizing impacts of the ongoing outbreak in the Atlantic and Caribbean and planning for restoration of affected corals. We are also strengthening international partnerships to assist with combating the disease.

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It's a tall order, but NOAA recognizes that stony coral tissue loss disease is a complex challenge that will impact US coral reefs for years to come. NOAA's Action Plan outlines ongoing long-term actions needed to address this threat for the future, while also prioritizing what we should do right now. You can find a link to both the plan and more information on the science and management of stony coral tissue loss disease.

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See our press release, in the news section of the NOAA.gov website. With that, thank you all for joining us today. And I'll turn the call back over to Jennie Lyons, who will facilitate a Q&A.

Thank you so much, Jennifer. At this time, we will open to reporter questions.

00:05:07:02 - 00:05:39:24

If you would like to ask a question at this time, please press star one. Just a moment while we queue up our first question.

Our first question comes from Alex Harris at the Miami Herald. We are opening your line. Alex, you are open.

Hi there. Thank you guys so much for getting together to talk about this with us today. My question is related to what Jennifer was mentioning.

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Do we have a sense yet? Are we closing in on what the cause of the disease may be? I know we identified it in Port Miami in 2014, but what are the theories of what caused this disease to emerge?

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I don't know that we've narrowed any further than we already suspect that that was the epicenter for where the disease spread. We still don't know the actual vector of the disease. We're doing a lot of research to figure out whether it's viral, bacterial or what. Some mix of those things. We suspect that it has a bacterial component to it because the disease does respond well or corals respond well when they're treated with antibiotics.

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I might ask Andy Bruckner to weigh in on this as well.

Thank you, Jen. Yeah, I can provide a little bit more background. So there are certain types of bacteria that we see in corals that show signs. Some of those we do see in corals that haven't yet exhibited visible signs of tissue loss. But we believe that because in a lot of cases can actually be sick before they manifest the visible find.

00:06:53:03 - 00:07:19:10

The bacteria that we identified have also been observed in other coral diseases. And one of the things is that some of those could actually be opportunistic bacteria that are pathogenic and they sort of move into the host after it's already sick. We've also identified a potential virus that may be involved in, like what Jen was saying. What we feel is that it could be multiple factors, so it could be some of these biotic agents like bacteria and viruses.

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One of the reasons why this disease has become so severe is that corals are also concurrently sort of compromised by environmental stressors. So it could be a combination of both these organisms and then being triggered then by some of these environmental stressors.

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Thank you. Our next question comes from Emily Foxhole with the Houston Chronicle. Emily, please go ahead.

Hi. I've been covering the scientists down here at the Flower Garden Banks who are concerned Stony Coral Tissue Loss Disease could be there now. They're still trying to figure that out. So I was hoping you could talk a little bit more about why it's so hard to diagnose them.

00:08:09:24 - 00:08:34:05

I don't know if there's anything in this plan you're releasing today that might impact how that area is treated going forward.

I will ultimately turn this over to Andy. But as you said, during a recent National Coral Reef monitoring program cruise, our divers noticed a prevalence of new disease lesions in corals they hadn't seen before.

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We've been able to get back out on the reef and begin treatment and are doing the tough work now of assessing whether or not this is Stony Coral Tissue Loss Disease. They're treating the corals just as this plan calls for. Fortunately, we had ample time to work with the sanctuary to make sure they had a solid plan in place and knew what to do if they saw the disease.

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But in terms of actually diagnosing the disease itself, I'll let Andy answer that question.

Okay. Thank you, Jen. So there are a couple of different things here that make it really, really complicated. First of all, when coral get sick, you may not actually see that until it manifests. And what I mean by that is the core can be sick without actually losing tissue.

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Only in the field can we actually tell that it has the disease once we actually see it starting to lose tissue. The second challenge we face is there's another disease described first throughout the wider Caribbean, including Florida. And it's been seen on and off in the flower gardens called White Plague. This is something that sort of gone up and down.

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There are potentially three different varieties of white plague over time. And in some senses that manifests in the same way only coral tissue like disease, at least initially. But there are really key differences between white plague and bony coral tissue, like these, and that include things like looking at the order when species get affected. Janet mentioned that some 22 species are known to be affected by that, and some of these are more susceptible to the disease than others.

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And typically what we see is those highly susceptible species show signs of the disease and it spreads among the populations of those corals, and a lot of those die. Then some of these more what we call intermediate susceptible could get hit. At the flower gardens, one of the challenges

is that some of the highly susceptible species are showing the vines, but there are certain other ones that yet haven't shown disease.

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That's why we're being overly cautious before, you know, just assuming that only coral tissue disease and not some other type of disease like white way. And then the second part of your question in terms of diagnostic tools, this is one of the things that's really highlighted in this plan. We know that we need to come out with simple diagnostic tools that we can use.

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Like what happens when you go to the doctor. You have a sore throat test to determine whether it's strep throat or not. We're looking to develop those same sorts of tools for corals so that we can go in. And when we see a disease outbreak, we can right away. They don't equal tissue like disease or no, it isn't.

00:11:16:04 - 00:11:42:05

One of the benefits of that then is because we're working on some of these measures to treat these coral by knowing that we definitely have inequalities like disease, we can be much more effective in the interventions that we then apply to those corals.

And this is Caroline. In addition to what Andy said, there is also a specific activity in the implementation plan, specifically directed at Flower Garden Banks National Marine Sanctuary.

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So if they do determine that what they are seeing is indeed stony quality philosophy, this plan calls out the need to provide resources to support monitoring intervention in coral rescue within the National Marine Sanctuary over the next five years.

Thank you all. Our next question comes from Tristan at the Times-Picayune. Tristan, your line is open. Hi.

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Yeah, thanks. Somebody mentioned that there are a number of other environmental stressors that may be affecting this. And I've heard of, you know, everything from fishing to development on the shore and things like that. Can you talk about maybe what are the primary environmental stressors that can be affecting the coral along with this disease? Sure. You know, corals worldwide are under the same fleet of stressors.

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Typically, it's poor water quality due to land based sources of pollution, even some point sources of pollution. So think about sediment, nutrient sewage and a suite of pharmaceutical products that go out in sewage water as well. That really impacts the environment, the water quality that corals live in. Unsustainable fishing practices put a lot of stress on coral reef ecosystem because it changes the balance of species that are on the reef.

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You can fish down the fish that are critically important to graze algae to keep your algae and coral in balance. And then when you add on top of that the twin stressors of climate change in terms of warming waters that cause bleaching and more acidified waters that really can slow down the growth rates and maintenance of coral reef building.

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You've got a host of stressors that these corals are already under. When you add to a typical disease like that, that just puts the ecosystem into further stress.

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Thank you. Our next question comes from Tim O'Hara at Key West Citizen. Tim, please go ahead.

Yeah, I'd like to kind of get back to the cause. It seems like this disease kind of came about after they did a major dredging project in Miami of Port Everglades. There's been talk about that, but no one's really said anything definitive.

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Can you talk a little bit more to that, of how that may or may not have impacted this? And then also, I just kind of had a follow up question about the transmission of ballast water. Is there anything within NOAA or one of the federal groups that they can dictate is to, uh, even in other countries or in this country where and when ballast water can be really.

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Let's first have Caroline address the ballast water question and then we'll come back to your first question.

Sure. So in terms of ballast water, NOAA has been working really closely with partners at the US Task Force, including the EPA, the Coast Guard, USGS and other state and territorial

governments, to better understand how the disease is being transmitted and how ballast water may or may not serve as a vector.

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So there are currently policies and regulations in place specific to ballast water discharge. However, I know as well beyond the Coast Guard and EPA are currently working to update those regulations under the Vessel and Incidental Discharge Act. So in addition to the regulations are currently on the books, Coast Guard a couple of years ago actually released a marine safety information bulletin to the maritime industry that not only reminded them of the existing regulations, but also identified some voluntary best management practices.

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But they can be implementing that would help prevent the threat of transmission of disease via ballast water. If that is indeed how it is being transmitted. There's also a number of other activities underway essentially to compile and distribute guidelines that might help prevent transmission. There's also ongoing coordination with the shipping industry to disseminate and continue to communicate the best management practices for preventing disease spread.

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The Coast Guard is also, you know, really taking a leadership role here and has created a task force and task force in the Caribbean. The Coast Guard is also conducting increased compliance checks of high risk vessels and is working to flag some of the high risk vessels that are transiting between the Caribbean and Pacific in hopes of preventing the further spread of the disease west westward.

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Thank you, Caroline. And Andy is going to take your first question.

All right. Thank you. So I'm going to give you sort of more of a general answer. I mean, so the bottom line is we can't conclusively say yet the role that any of the dredging had. What we do know is that we believe that the potential bacteria that are involved in this may actually be transmitted via water currents and circulation patterns down close to the bottom.

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So not up in the surface of the water, but down near the bottom in sort of that sediment layer. We know that bacteria, actually, certain pathogenic bacteria, have been identified in coral reef environments that occur within the sediment. Basically that sediment serve as the reservoir where those bacteria are until for some reason they're resuspended. And so one hypothesis is that there was some potential pathogenic bacteria in the sediment that got resuspended and

then it was carried sort of in the boundary layer with the current throughout Florida, you know, first to the north in the southeast Florida system and then south and west along the Florida Keys.

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That said, there have been some experiments tested where they've taken some of the sediment and tried to put it into aquaria with these corals. And we've not been able to transmit the infection at this point in time. So that's one of the difficulties that we don't actually have any sort of smoking gun to say yet. We can take sediment from the Miami area and add it to a tank with susceptible corals and have them get sick.

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Yeah. And this is Caroline. I just have a quick follow up as well. So the implementation plan definitely does address these issues and identifies additional activities and actions that can be taken to help mitigate the risk of being spread in this way. And so in terms of ballast water needs, that there's activities in the implementation plan that focus on plant build partnerships for ballast water management with regional and international organizations.

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There are plans to update existing ballast water management practices as soon as we get results from ongoing research projects. In terms of the sediment and coastal construction, the implementation plan includes activities that focus on integrating research findings regarding sediment into avoidance strategies for future coastal construction projects and also identifying standard operating procedures for how to monitor disease prevalence before and during coastal construction activity.

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And so the implementation plan really does take note of these potential threats and potential sources of continued transmission and seeks to identify a path forward that will help us reduce the further spread of the disease. Thank you. And as we pull up our next question, I just want to remind the reporters on the line that you press star one to get in line to ask a question.

00;19;33;03 - 00;20;03;25

We only have one more question in line at the moment. So please do press star one if you have a question. Our next question comes from Eric Stokes. Dad with Science magazine. Eric, please go ahead.

Hi. Could you put the proposed budget in the plan into context? How much money does NOAA currently spend per year on this disease and how much of that is for research?

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And then I have a quick follow up. Sure.

We might have to get back to you with exact numbers. Since we've become aware of the disease, we've been able to carve out small portions of our existing appropriation to work on identifying the cause of the disease and track the spread and figure out how to treat the disease. In the past couple of years, we've received a few million dollars in our appropriation to do more work on stony coral to see what's disease in Florida specifically and and our territories VII and Puerto Rico.

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The plan is quite audacious and in terms of the scope and amount of money we think will be needed to implement it fully. So I'd like Caroline to address that more, but we are right now working out of existing funding and know that will be relying on other partners and private sector to fund the full implementation of the plan.

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Caroline, do you want to say a few words as well?

Just to kind of reiterate your point that, you know, funding is not expected to come from a single source. It will likely come from know mix and mix of existing and new private and public sector funds. And then also, it's important to note that many of these activities are designed for NOAA's area of expertize and for know what to lead.

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But a number of the activities included in the plan are also intended to be implemented by partners, state and territorial partners, universities. And so we're anticipating that some of the funds implement this plan will be going out in the form of grants. And I know, as I was mentioning, the scope of the plan is quite large, but these are really important activities in terms of addressing not only this specific disease, but also in terms of enhancing this ability to address coral to other diseases in the forward.

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So there's a lot of really important investments that are included here. But we do the plan does include a list of priority activities that know if and when funding is secured. We will move forward with these priority activities first because of their importance and urgency to addressing inequalities, philosophies.

Just one other piece for context. How does that amount compare to other diseases, ocean diseases that no studies?

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That's a great question. Andy might be the best to field that one there.

There just isn't a lot of expertise in coral disease and therefore kind of hard to figure out what's going on. And we haven't had the resources to explore and research as much as we would have liked to. Andy, do you want to dig in on that a little bit more?

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Yeah, certainly. So the first thing that I'd say about stony coral tissue losses is I think what's been most unusual and probably beneficial is that we've had more partners step up and work together to address this, both to promote the research, to do field work, to look at these interventions and everything else. There's been no coral disease that's been identified anywhere in the world where we have that level of engagement.

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The second thing is that I think, you know, Jen was really correct in the point that for coral disease research, we're still kind of in the dark ages, we're kind of like where we were with human medicine in the late 1800s. We're just learning. We are taking a lot of the lessons that have been applied for terrestrial organisms, for human diseases, other things, and trying to modify them for the ocean, which right there, because you're in the water as a huge complication.

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But we have all the other diseases in the past. I mean, some of that may be the fact that we never have never had a disease that had as severe an impact as stony coral tissue like disease. But we've had little bits of work here and there done on them, but nowhere near the investment that we had going forward with stony coral, tissue loss, disease.

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Thank you. And Eric, I would just invite you to follow up with me afterwards with more. I'm not sure we've all the numbers we would need to look at at our fingertips or exactly what you would want. So please do follow up after the call and we can see how we can help you with that.

Our next question comes from Michael McDonald at Eco America.

00;24;29;15 - 00;24;53;10

Michael, please go ahead.

Yeah, hi. Thank you so much for doing this call. I have two questions, really. One is with this implementation plan that you're releasing, how broad of an impact do you expect it to have? Is there any way to sort of quantify what percent of reefs that could be saved?

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The other thing I was wondering, I know over the last year or so, there have been reefs in Belize and Honduras and other areas around central America where this disease has been identified. Are there any new countries around the Caribbean where you've found it and have you, you know, to what extent it spread into these other countries where it's sort of popped up in the last couple of years?

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I think it'd be great for Caroline to take that one.

Overall, you know, it's quite far through the Caribbean waters, and obviously it's in all three of our U.S. coral reef areas. The key to this plan is preventing the spread into the Pacific that saves an enormous amount of corals and then also being able to get better at preventing further spread in the Caribbean and treating the corals that have been impacted.

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So Caroline wants to say a little bit more about that. I'm sure in terms of your question about the spread of the disease to the Caribbean. I'd be happy if you'd like to follow up after the call. I'd be happy to put you in the direction of a really great online resource that kind of details the the temporal progression of the disease throughout the Caribbean.

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Right now it has been confirmed in 25 different countries and territories. Most recently in 2022. It has been documented in Saint Vincent and the Grenadines and Grenada and then most recently in Colombia. And so unfortunately, the disease is continuing to spread throughout the region in terms of the implementation plan. We do have a number of activities included in the implementation plan that would build upon existing efforts to collaborate with the international Caribbean and the international community.

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Currently, I kind of co-chair that a group called the Caribbean Cooperation Team, which brings together coral managers and practitioners from US territories in the Caribbean and also the International Caribbean. And that group really promotes information, exchange, training, resources. Most recently we just tell them an in-person workshop last week focused on coral rescue in the Caribbean in the face of stony tissue loss.

00;27;05;17 - 00;27;31;26

And so the plan really builds on those existing activities and identifies, you know, increased resources needed to continue that information exchange and continued dissemination of resources to protect the broader ecosystem throughout the international Caribbean. In terms of the breadth of impacts of the implementation plan, it's quite broad in terms of it in terms of what it covers.

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There's a lot of funding and resources identified as necessary to advance key research questions. There are a lot of activities in there focused on increasing our capacity to respond to the disease to prepare for its potential spread to the Pacific. And so, you know, thinking about what are we doing now and what do we need to do moving forward to both protect and restore affected reefs and ensure that the disease doesn't make it to some of the reefs in the Pacific?

00;28;00;12 - 00;28;41;07

It's hard to quantify specifically, especially in terms of protection of Indo-Pacific reefs, because we're not sure exactly what the likelihood is of the disease spreading. And we're still trying to answer basic questions about the susceptibility specific corals. But again, the the plan is quite broad in terms of addressing resources, in terms of research, rather in terms of addressing capacity needs, in terms of promoting awareness, strengthening partnerships, and working with the broader coral reef management community to reduce these kind of overall stressors that are reducing the the health and sustainability of corals overall.

00;28;42;01 - 00;29;06;05

Thank you. Our next question is a follow up or a second question from Alex Harris with the Miami Herald. Alex, please go ahead.

Hi. Sort of continuing off what Caroline was just saying. What is the long term outlook for this disease do with this plan or just in skimming through? It seems like there's a lot of ideas for, you know, putting more research and more money into solutions like antibiotics and prebiotics and the ark.

00;29;06;15 - 00;29;34;09

But what is your long term look? Do you think that we can eradicate this completely or the best we're going to get it down to a manageable level at some point. Caroline, I think that's your yeah, I can and then probably pass it off the Andy as well. I'm sure he has some thoughts. And so it's the implementation plan I think recognizes the fact that different locations are kind of in different stages of dealing with it and addressing the disease.

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In Florida, where the disease was first identified back in 2014, it has really become endemic along reefs. And so there is, you know, a transition from emergency management to kind of looking at questions of how are we going to deal with the impacts of this disease and its continued presence on longer term. And so and then you look at, you know, the US Caribbean, so Puerto Rico and the Virgin Islands, the disease has only more recently arrived there, you know, back in 2018, I believe.

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So they're still dealing with some of these outbreaks situations on the reefs where the disease is rampant and coral mortality levels are really high. And so I think the plan recognizes that different places are in different stages of dealing with and addressing the disease and understands that we need to be taking both both an emergency management based approach and thinking about what are we doing now to control the spread of the disease, but also thinking longer term about what kind of, you know, strategy we can be implementing to promote long term restoration of reef health and sustainability in the face of this disease.

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Andy probably has some additional thoughts on that as well.

Yeah. Thanks, Caroline. I agree with everything that Caroline just said. One of the challenges is I don't think that it's feasible to completely eradicate this disease. It's always going to be around. But what we're looking at and what we're now starting to see in certain areas of Florida, which you mentioned, endemic.

00;31;03;17 - 00;31;28;26

So the disease is still present in all these reefs, but we're seeing fewer corals that are being affected. And so, you know, typically when a disease moves through a population, it knocks out all sort of the weakest members of that population. And then the ones that survive show higher resistance. And so we're actually moving towards managing our reefs in the face of recognizing that those inequalities show up.

00;31;28;26 - 00;31;55;19

Disease in a number of these other diseases will potentially continue to be present. But what we're doing is we're trying to improve the overall resilience of the ecosystem, resilience of those corals. And as we move forward with restoration, we're not just sticking, you know, those same species back out without looking at more things like their genetics, like some of the other organisms, what we call the hollow bark immunity, they're symbionts that are associated with them.

00;31;55;27 - 00;32;19;01

And looking at those and looking at how they can tolerate some of these different stresses. So stony coral tissue like disease as well as other stressors and working towards building up just a more overall resilient community so that it is able to persist in light of quality issue disease and other sort of future potential diseases that may emerge down the road.

00;32;20;16 - 00;32;41;17

Thank you. And again, a reminder to press star one to get in line, to ask a question, one to get in line, to ask a question. Our next question comes again from Emily Foxhall at the Houston Chronicle. Emily, please go ahead.

Thanks. Caroline, you were talking about the spread of this disease and I was curious how those impacts have been.

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Pretty much the same everywhere that you've seen it, like, is it all as severe as it's spread in Florida or has it been better or worse anywhere for any reasons that you can figure out? Andy Yeah, yeah, maybe. Andy, go ahead. Okay. All right. So so for the Caribbean, what we've seen so far is we see the same patterns of what particular coral species are first to show signs of the disease and how it's spreading through the population.

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We know the highly susceptible species we found in Florida are also highly susceptible everywhere else in the Caribbean. And so we're still using that as one of our diagnostic criteria right now to verify whether it is stony coral, tissue disease or something else in terms of the impacts. I'm hoping this continues in this direction.

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It helps us out. When the disease first gets into a system, there tends to be a lot higher proportion of the corals that become infected and then potentially die from this disease. But over time, then fewer colonies are getting infected. And even of some of those highly susceptible species, and when they do, they only lose a little bit of their tissue.

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So these coral, these rebuilding corals are all colonial animals. And so, you know, unlike a fish, get the disease, for instance, if it as severe as what Tony called tissue like disease has been for the corals, it's basically going to die where the coral because it's a colonial animal part of that colony can die from the disease.

00;34;19;11 - 00;34;40;04

But if the corals are able to, if the immune system kicks in and it can fight off the pathogen, it can then still survive. So you have more corals that you're seeing now. I think when it's showing up in some of these places that only suffer partial mortality for that they are still alive. And then over time, those corals are able to continue growing and contribute to their function on the reef.

00;34;40;22 - 00;35;00;16

That's the first thing that I think we're seeing. The second thing is, I think that we've identified and we even saw this in Florida during the the early phases when it first came through in each of the US jurisdictions and the other countries in the Caribbean, they have certain reef for the disease shows up, but it's having much less of an impact than other reefs.

00;35;00;16 - 00;35;28;17

And we just think that that's related to the fact that there's other conditions, environmental conditions, the organisms that are found there, you know, the populations more intact, things that are making the impacts less severe. And I think that's a really, really important point to take home here because ultimately, you know, it shows then by understanding some of this that we can have much more of a successful effect on our interventions.

00;35;28;17 - 00;35;46;28

And, you know, where we target those, what the specific interventions are in terms of of, you know, as it emerges in new locations, ensuring that that the impacts are less than what we saw during year one and year two, when we are still struggling to understand, you know, some of the various facets of this disease.

00;35;49;03 - 00;36;12;08

Thank you. I am showing no questions in line right now. So again, if you do have any more questions for our experts, this is your time. Experts have set it aside for you to ask these questions. But while we are waiting to see if anybody else wants to ask the question star one to do that, I'm going to open up to Carolyn McLaughlin.

00;36;12;08 - 00;36;39;11

I think she wanted to follow up maybe on a question from earlier. Caroline.

I just had a very quick clarification. I misspoke and so we actually arrived in the US islands of Puerto Rico in 2019. I had previously stated it was 2018, but it was actually 2019. So I just want to clarify. Thank you, Caroline. Okay. We do have one more question in line right now.

00;36;39;11 - 00;37;09;01

Tim O'Hara with Key West Citizen, please go ahead.

I'll just keep it really quick. And a follow up for Andy. Are we seeing any natural immune system resistance to this as this progresses through the years, or is this all through the work of, you know, the antibiotics and other things you're doing? So I would say yes to your question that, yes, we are seeing certain corals that show more.

00;37;09;05 - 00;37;29;00

I don't know if they're immune, but they're more resistant and resilient to the disease and. It's really, really interesting. We've even taken this the next step so that we have certain reefs where the overall prevalence has been lower than other locations. But then we also have certain corals when they're neighbors of the same species got hit and died.

00;37;29;00 - 00;37;50;26

We have some that were originally we didn't know why they weren't, but we do believe it is because they're either their immune system has kicked in or they already are more resistant to the disease. And we've taken a few of these. Now, these are early stages, but we have corals that we collected in response to the rescue effort ahead of the disease line.

00;37;51;06 - 00;38;17;12

But we also have gone back and started to collect some from area that were affected, some of the survivors. And we're now starting to find that corals were basically inducing them to reproduce. And then we're fertilizing them, you know, mixing the act with the sperm, and then we're growing them up. And some of the juvenile corals that we produce from some of the these corals are now themselves after showing resistance.

00;38;17;12 - 00;38;42;05

They don't show when we try to do transmission. Experiments were not able to induce disease in those particular corals. And so that's something that we haven't manipulated those calls at all.

It's just that I think that they are either responding through immune, you know, some sort of immune mechanism or that they were resistant to begin with. Thank you.

00;38;42;05 - 00;39;03;23

I see no more questions while we just give you all just another minute to press star one if there are any other questions, while we have our three experts right here on the line, I'm going to go through each expert and just ask them if they have anything else they want to add or close with or underscore, before we go. I will start with Jennifer Koss.

00;39;05;01 - 00;39;34;19

Thank you. I just wanted to thank everyone who got on the call and who are asking great questions. I hope you continue to cover corals. We've got a lot of positive news regarding coral restoration and various locations around the United States and some really exciting international work we're doing. So corals need our time and attention and this is the time to double down to make sure that we keep coral going for generations to come and the algorithmic.

00;39;36;02 - 00;39;56;10

All right. Thank you. And again, thank you for the really great question. But I think that it really helped us think about what we're trying to do and helps us identify next steps. But I thought at the beginning, and I think one of the most important things here is that it's not just one or two scientists that can go out and do this research, but it really requires the whole community getting together.

00;39;56;10 - 00;40;22;15

It requires, you know, our resource managers, it requires the academic, it requires some of the non-government organizations, everyone really to work together on. This is the first thing. And the second thing is sharing. And I think that that's one of the things we've demonstrated in the more so than what's ever happened before in Coral Reef is that we have so many partners, we build partnerships all around the world and we're sharing this information and the lessons that we learned in Florida.

00;40;22;15 - 00;40;53;22

We're trying to share to other jurisdictions and other countries that, you know, prior to them. First, the needs first emerging, but then also once they've gotten it really to try to minimize the impact and figure out a path forward. One of the points I want to just end by pointing out one of the things that in this plan that I feel at one of the most critical need both for stony tissue like these, but this will help us in general for any new marine invasions, any new diseases that emerge out here.

00;40;53;28 - 00;41;37;17

And we are proposing in the plan, if an establishment of a know it, Center for Excellence for Marine Investigation and I really feel that by having one facility that we can use that has a dedicated facility with trained experts, that this would further enhance our ability to provide a more collaborative and cohesive approach to quickly respond to both tissue off disease and any other disease event and really move, move to the direction that we've gone with this disease where it's not just, you know, one researcher looking, for instance, at DNA in corals, but it's more of a holistic sort of multidisciplinary approach and diagnostic screening to develop more effective treatments and preventative measures that I

00;41;37;17 - 00;42;10;25

think can help with all emerging diseases. And again, thank you. Thank you for your time today.

And Caroline, let's close with you.

I just want to reiterate, thanks. Thank you so much to everybody for your attention to this really important issue and excellent questions. You know, I want to emphasize that Andy said and recognizing of NOAA's partnerships on a field we work for years now, I have been working very closely with state and senatorial partners on Disease Response Preparedness.

00;42;10;25 - 00;42;33;29

NOAA's also been partnering with other agencies on the US Quality Task Force, the EPA, the Coast Guard and USGS to do everything possible to help prevent the further transmission of this disease. And so, if implemented, this plan will really provide tremendous benefit to state and territorial partners and help protect coral reefs that are really important to the sustainability of coastal ecosystems and economy.

00;42;34;23 - 00;42;49;09

This plan builds consensus around where we need to be investing the resources and assets direction. There were a lot of people who were involved in the development of this plan and that really puts us on the path towards collaborative action moving forward.

00;42;51;14 - 00;43;29;03

Thank you all for joining our call. There were, I know, several reporters on the line who didn't ask questions. So as you go through them, write your reports. Please feel free to reach out to me with any further questions you may have that were answered here today. The report and other materials, including video and imagery and soon a recording of this call are going to be available on our website and in the recording of the call you can also access them through the link in the know press release up on the NOA website and sent to your news teams today.

00;43;29;03 - 00;44;00;08

If you have any other questions, please don't hesitate to reach out to me. My email address is Jennie.Lyons@noaa.gov. Let me know your inquiry and the deadline you're working under. Again, that's Jennie.Lyons@noaa.gov. You can also reach me on the phone at 202-603-9372.

00;44;00;16 - 00;44;18;13

Again, that's 202-603-9372.

With that, we will go ahead and close this call. Thank you all so much for your time.

Thank you for your participation. That concludes today's call. You may disconnect at this time.

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