TRANSCRIPT

NOAA's 2023 High Tide Flooding Outlook

August 22, 2023 at 2:00 pm ET via GoToWebinar

Hosted by NOAA's National Ocean Service Public Affairs

Media advisory:

NOAA to release annual and monthly high tide flooding outlooks

News release:

U.S. high tide flooding continues to break records

1:40

Kate, you're muted.

1:45

I apologize. Let's take that from the top. Hi, everyone. My name is Kate Silverstein with NOAA's National Ocean Service Public Affairs Team.

1:55

I want to start by thanking you for joining us for this press conference today, where we'll discuss this year's Annual High Tide Flooding Outlook for the U.S. and we'll also introduce a new monthly high tide flooding outlook that predicts where high tide flooding might occur for each day of the year.

2:12

To provide more detail, I'm very excited to welcome Nicole LeBoeuf, the director of NOAA's National Ocean Service, who will provide an overview of today's news.

2:22

We also have four NOAA experts, who will join us for the Q&A portion of today's call.

2:27

From NOAA’s Center For Operational Oceanographic Products and Services, we have Gregory Dusek, Chief Scientist; Karen Cavanaugh, Coastal Hazards Oceanographer;

2:38

Analise Keeney, Coastal Hazards Oceanographer, and joining us from NOAA’s National Ocean Service Headquarters,

2:46

We have William Sweet, Oceanographer.

I'll start with just a few housekeeping items. This press conference is being recorded. If you do not wish to be recorded, please disconnect at this time.

2:57

We'll begin with remarks from Nicole LeBoeuf and then we'll take questions from reporters.

3:02

If you're a reporter and you would like to ask a question, you can click the hand icon in the GoToWebinar window next to your name.

3:10

A staff will then call on each reporter who has virtually raised their hand and your line will be unmuted.

3:16

You can also use the question tool in your GoToWebinar window to type a question for our speakers.

3:22

We'll then read that question out loud for one of our speakers to answer.

3:26

Please be sure to state or type your full name and media affiliation when asking your question.

3:32

And with that, I have the honor of welcoming the director of NOAA's National Ocean Service, Nicole LeBoeuf, to open our call.

3:41

Thank you, Kate. Good afternoon, everyone, and thank you for joining us today.

3:45

My name is Nicole LeBoeuf and I'm the Director of NOAA's National Ocean Service.

3:50

Today, NOAA is releasing an enhanced suite of high tide flooding products to help communities across the country better prepare for and mitigate high tide flooding impacts.

4:01

Let's start by defining high tide flooding, also sometimes called nuisance or sunny day flooding.

4:07

This flooding happens when tides reach anywhere from 1 to 2 feet above the daily average high tide, covering what is typically dry land along the coasts, and leading to inundated roadways or other infrastructure.

4:21

As relative sea levels continue to rise, high tide flooding is occurring more frequently.

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It no longer takes severe weather to cause disruptive flooding along the coast.

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Over time, recurring high tide flooding can have major impacts on coastal communities, like degrading infrastructure, property and coastal ecosystems.

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NOAA maintains a network of coastal tide gauges known as the National Water Level Observation Network.

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These gauges collect continuous water level, oceanographic and meteorological data for the nation.

4:53

Some of these gauges have been recording data for more than 100 years, providing critical long term datasets to support coastal decision making.

5:02

Through this network, NOAA monitors the rapid increase of high tide flooding and the steady creep of sea level rise.

5:10

Released today, our 2023 Annual High Tide Flooding Outlook brings together data about high tide flooding events recorded: at 98 NOAA tide gage stations between May 2022, and April 2023.

5:26

This annual span of time is known as the meteorological year.

5:32

NOAA's 2023 Flooding Outlook also provides predictions of high tide flooding through April 2024.

5:38

This outlook shows that, on average, U.S. coastal communities experienced four high tide flood days in 2022, falling squarely within our prediction from last year of 3 to 7 days.

5:51

That said, some communities saw more flooding than others. The Pacific Northwest and the Mid-Atlantic coast observed the highest numbers of high tide flooding days, each with an average of 8 days over that 12 month period of time.

6:04

Excessive high tide flooding was not limited to the Northwest and Mid-Atlantic Coasts.

6:08

In the Southeast Atlantic, for example, Trident Pier, at Port Canaveral in Cape Canaveral, Florida, recorded 16 high tide flood days in 2022.

6:20

For comparison, this particular station did not experience any high tide flood days in the year 2000.

6:27

So how much high tide flooding can we expect this year?

6:30

NOAA's 2023 annual high tide flooding outlook projects U.S. coastal communities will see 4 to 9 high tide flood days on average, between May 2023 and next April.

6:43

That's up from last year's prediction of 3 to 7 days.

6:47

NOAA's 2022 data also indicate the increased high tide flooding is not isolated to a few regions, but is accelerating in many locations across the country due to sea level rise.

6:59

In addition, a new factor in the mix this year is the strengthening of El Nino conditions that are predicted to further amplify high tide flooding frequencies at more than a third of NOAA tide gauge locations on the East and West coasts.

7:14

Communities in the Mid-Atlantic and Gulf are predicted to experience the most high tide flood days as El Nino conditions will compound the effects of sea level rise in some locations.

7:25

For the Mid-Atlantic, 9 to 14 high tide flooding days are predicted representing a 300% increase since the year 2000.

7:36

On the West Coast, high tide flooding is largely driven by El Nino conditions, rather than sea level rise.

7:42

There too, more flood days are expected this year.

7:46

For the Pacific Northwest, 4 to 11 flood days are predicted representing a 150% increase since the year 2000.

7:55

For the Pacific Southwest, 1 to 5 flooding days are predicted, an almost 100% increase over the year 2000.

8:04

Clearly high tide flooding is not just a regional but a national issue and is expected to accelerate well into the future.

8:11

In fact, by 2050, NOAA predicts that coastal communities across the nation will experience an average of 45 to 85 high tide flood days per year.

8:23

The good news is that the data NOAA delivers directly helps coastal communities make informed decisions about flooding over the next year and into the future.

8:33

And in addition to NOAA's Annual High Tide Flooding Outlook, which I've been describing so far, we're excited to release NOAA's new Monthly High Tide Flooding Outlook.

8:44

Replacing the seasonal high tide flooding bulletin, our new monthly outlook provides the likelihood of high tide flooding each day in the calendar year, up to a year in advance, at NOAA tide gauges across the nation.

8:58

While the monthly outlook does not account for real-time weather conditions, it can be paired with weather forecasts to understand if an approaching storm might coincide with already elevated water levels.

9:10

Coastal communities can use this authoritative information to make informed decisions about flooding risks, like whether to close roads, perform maintenance on storm drainage systems, or prepare for emergency protections for other vulnerable infrastructure.

9:27

Together, NOAA’s Monthly and Annual High Tide Flooding Outlooks, provide coastal communities with the information needed to protect lives, properties, and ecosystems and economies.

9:39

As towns, states, tribes, and businesses– such as ports and related maritime commerce industries–and the federal government increasingly consider the impacts of coastal flooding and related hazards, NOAA’s National Ocean Service is the authoritative source of data and information on a wide range of risks.

9:59

And thanks to funding from the Bipartisan Infrastructure Law, NOAA is making even more critical enhancements to our products, so communities and industry have the coastal risk information they need, when they need it.

10:14

One last note, NOAA is not just our nation's sea level rise data provider.

10:19

Across the United States, many of NOAA's people and facilities, forecast offices, marine science labs, visitor centers, and much else, are located in the coastal zone.

10:30

That makes NOAA, including the National Ocean Service, a truly vested stakeholder at the center of the national conversation on sea level rise.

10:39

With that, thank you again for joining us today. I will now turn the call back over to Kate Silverstein who will facilitate questions and answers.

10:51

Thank you Nicole.

10:53

We will now move to the Q&A portion of today's press conference. Just to remind folks, if you would like to ask a question, you can use the hand icon in the GoToWebinar window next to your name in the attendee list that appears on the right-hand side of your screen.

11:11

NOAA Communications will call on each reporter who has a virtually raised hand, and once you're called on, your line will be unmuted. And you may also need to unmute yourself by selecting the microphone icon next to your name.

11:24

You can then ask your question to our experts.

11:27

You may also use the question tool in the GoToWebinar window to type a question for our speakers about today's outlook.

11:35

We'll then read that question out loud for a response from our experts.

11:39

Be sure to state or type your full name and media affiliation when asking your question.

11:45

Please note, this time is specifically reserved for questions from the media. With that, we look forward to your questions. Just a moment, while we queue up our first question.

12:13

OK, I am calling on Mark Schleifstein first. Mark, looks like you are muted. You might want to try to take yourself off mute, and let's see if we can hear you.

12:33

Hey, Mark. Can you try speaking?

12:41

It does look like you're unmuted, but we're having trouble hearing you.

12:45

Mark, if you want to go ahead and type your question into the questions box, we can also address your question that way.

12:53

For the time being, we're going to move on to our next question from Sophia Smith from WHYY.

13:06

Your line is open.

13:08

Thanks. In the Mid- Atlantic region specifically, with the increases we've been seeing in recent years and then the projection for this year. Can you speak to the role of anthropogenic climate change versus land subsidence versus El Nino in causing those increases?

13:28

Sure. This is William Sweet.

13:32

The question of the Mid-Atlantic is definitely an area with high rates of land subsidence for some natural and unnatural reasons, natural being compaction of sediments. From the impact of a crater that had formed millions of years ago.

13:47

There's also still settling from the last glacial maximum as well as some natural reasons, including pumping of groundwater for drinking.

13:57

So that is really currently causing about half the overall rate that we're witnessing.

14:04

It's hard to really break it down in terms of floods that are caused by land subsidence versus sea level rise. But there's a very strong signal in the data, upwards of 70% or so, that the rise that we've been experiencing in the last several decades has been attributed to anthropogenic warming.

14:24

So, it's definitely, you know, there are many reasons causing sea level rise which is driving this rapid increase in high tide flooding, which is, for the most part, accelerating on an annual basis in this part of the country, meaning impacts are growing by leaps and bounds.

14:40

So by the time you recognize water coming, storm water systems, flooding water on the streets when it's sunny outside– those impacts will become chronic rather quickly.

14:52

Thank you Dr. Sweet, We will take our next question from Zach Coleman at Politico.

15:00

Zach, I've unmuted you. You might need to unmute yourself.

15:04

Great. Thank you for doing this. Kind of building off that last question.

15:09

I mean, maybe this is neither here nor there, but in terms of land development, what kind of impact does the development over wetlands influence any of these flooding events relative to some of the climate signals that you're seeing?

15:34

This is William Sweet.

15:37

No, impervious surfaces don't help.

15:41

The real issue with high tide flooding, let's say, when it comes to development, is a flood is only a flood if it floods. So, really from a humanistic standpoint, you know, we've got a lot of stuff in the way and the tide is sort of reaching the brim in many of these communities. When it rains, oftentimes the drainage systems or stormwater systems that we have in place that might have been laid in the ground upwards of a century ago are going bad in many areas.

16:08

With high tide flooding, water is starting to backfill within the system, and spills out onto the road.

16:14

So through an urbanized environment, there's just really no place for that water to clear. The downhill gradients really diminished the stormwater system.

16:25

So now, sure, we're building more at the coast. We're getting heavier rains, that’s another signal with the warming of the atmosphere, which can hold more moisture with sea level rise. High tide flooding, then, is really causing a jam, if you will, in the drainage capacity within these communities.

16:43

We're really starting to see the impacts of the high tide flooding in intense rain and where they meet at the coast. It's a very fragile area, and our infrastructure is struggling to keep up with the demand, and there are forcings coming from both the ocean and then in the air.

17:00

Thank you.

17:02

We are now going to take our written question from Mark Schleifstein at the Times Picayune. Mark writes, are there any plans to add gauges? Such as additional gauges in Louisiana? The new dashboard seems to only include Grand Isle, which is surrounded by a levee.

17:25

This is Greg Dusek, I can answer this one.

17:29

So, the reason with the dashboard with the monthly predictions, the limiting factor there in terms of being able to accurately predict, likely full months in advance is, really tied to how your tidal signal compares to other factors. And so the places where our model does not work quite as well are some of the locations in the Gulf in particular.

17:55

And so, you know, what we're going to be doing in the coming months to the next few years is trying to improve our model by accounting for the more non-tidal forces over the next few months or so.

18:11

And then we hope to be able to add additional Gulf stations to the monthly outlook, hopefully in the near future.

18:22

Great. Thank you, Gregory.

18:23

Our next question comes from Craig Miller with PBS Next Avenue.

18:29

Craig writes, Florida real estate is booming, even along the coast, despite these predictions and current vulnerabilities.

18:36

What would you say to prospective residents?

18:42

This is William Sweet from the Ocean Service.

18:47

Pay attention to the maps, the data, the models, the output that NOAA is providing, along with our federal partners to give folks an idea of what's coming. You know, we're making, not only next year’s predictions, but we're also giving guidance as to what to expect over the next 20 or 30 years.

19:05

If we don't take action, you know, these numbers are not to scare, they’re to help prepare. A flood is only a flood if it floods. So, do due diligence, you know, look out for your property, obviously. But the communities have systems of systems at risk.

19:22

If we start now, by identifying what, potentially, is going to be exposed and vulnerable, we can take action to remediate against the impacts that are likely to come, such that we can continue to have a viable and lively coast for folks to live at and support this economy where we live.

19:45

Thank you Dr. Sweet. It looks like we have one more question at that time. So I want to make sure that folks are able to ask all the questions of their experts. There's two ways to ask a question.

19:57

I'll remind folks again, you can use the raise hand icon next to your name, or you can type your question in the questions box in your control panel.

20:08

So with that, I will read a written question from David for WFAE in Charlotte.

20:15

And David writes, in the Carolinas, can you provide a couple of examples of areas affected by high tide flooding?

20:21

And speak to whether communities are adapting or talking about adapting.

20:34

Sure, this is William Sweet again.

20:38

Having grown up in North Carolina and, firsthand seen the beautiful beaches that they have that string the coastline, there are problems. And then, those sound areas were very flat, very low lying, along Highway 12 on the Outer Banks. There's a lot of land subsidence going on in the upper parts of North Carolina. This area is exposed to tropical storms, nor'easters and high rates of sea level rise. Like in Beaufort, North Carolina, Wilmington, North Carolina, water is creeping up in the storm water drains and backing up, flowing into the streets, so communities are recognizing the issues and they're taking action to combat the issue. You know, the first part, and any problem is, figure out, you know, where you're vulnerable as you can take action. And with the maps and the data that we're providing, they're doing just that through planning and looking ahead, again, so that they're prepared for what's coming. So that, again, a flood is only a flood if it floods. Now, you can take action and help mitigate any potential impacts that are, that are planned to, to come.

21:52

Thank you.

21:52

And maybe this is a question for Gregory,. This is from Sophia Schmidt, from W H Y Y.

22:02

And she writes to ask whether plans to improve the model and add more stations in Louisiana also apply to more inland stations in bays and rivers. She's saying, for example, for Philadelphia along the Delaware River.

22:17

Yes, we'll be evaluating all of our work, you know, and adding more inland stations. I mean, Chesapeake Bay is another region where our monthly outlook is not quite as skillful. And really, it's those locations, again, where, where the tide is not quite as significant. And so, you know, to improve that, it means being able to model those non-tidal factors more accurately looking forward in time.

22:39

So, yes, that is part of the plan. That's what we're going to be working on over the next few years. And hopefully we'll be able to add some of those more riverine stations in the near future.

22:49

Thank you. And other experts on the line, if you have things to add, please jump in.

22:55

I'm going to go to our next question, from Dinah Pulver with USA Today.

23:02

Dinah asks, could you please talk about the impact of marine heatwaves on high tide flooding?

23:13

Sure, this is William Sweet with the National Ocean Service.

23:17

Marine Heatwaves are just that– warm ocean blobs of water that are heating along the Southeast and the Gulf right now.

23:27

The same phenomena is also causing these oceans to rise.

23:33

So it's that component with seas that have been accelerating over the last decade or two in the Southeast and the Gulf.

23:41

We're having heavier rains, potentially more damaging hurricanes.

23:45

It's really a double or triple whammy in lots of ways, putting stress on the ecosystems, It's putting stress on public systems. So the heating that's occurring as we warmer the atmosphere, it's warming our oceans, it's causing the seas to rise. It's causing more intense rains, fueling stronger hurricanes, and it's causing damage to the ecosystem, like the bleaching of corals.

24:09

It's indicative of a warming climate, warming ocean. And it's something that really should be grabbing their attention and tells us what's to come if we don't get ahead of the curve in terms of the climate situation.

24:24

Can I jump in and just add a couple of things? This is Nicole. Absolutely.

24:28

Yeah, so I want to amplify something that Billy just said about how this data is used not to scare but to prepare.

24:37

NOAA is creating partnerships across key professional societies like the American Society for Civil Engineering, the real estate industry, the insurance and reinsurance industries, as well as other federal agencies within the Department of Defense and others who really, really care about coastal hazards.

24:57

Because they know it can affect not just national security, but also critical parts of our supply chain.

25:04

I can tell you that key ports around our country, one of the things that is first and foremost on their minds is coastal change, including sea level rise, and some of the hazards that we've been talking about today. And so, really trying to get the word out about how these data can be used to inform our planning. It's not just science for science's sake, right, its science for decision making, and for real, solid planning, and, we have more and more at our fingertips, including the ability to make good plans. And, you know, I would encourage folks, not only to look closely at these products, but also at some of the work that we'll be doing over the next couple of years. To further bring the science from water models of one type to water models of another type together. So, we can better understand the converging conditions along the coast and help plan for the future.

25:58

Thanks so much, Nicole.

26:00

I am not seeing any more questions, so I'll do a final reminder, in case folks have anything left, they'd like to ask our experts. To ask a question, you can use the raise hand icon, which should be to the left of your name in the attendee list.

26:16

You can also type out a question in the question section of the control panel, so I'll give it just one more minute.

26:26

While we wait to see if there are any additional incoming questions.

26:45

OK here is one additional question from Dinah Pulver with USA Today.

26:51

She asked, what can the average person do in response to high tide flooding?

27:05

Nicole: I'll take a stab at that. Oh, sorry, Karen, did you want to try?

27:09

Karen: I can, I try. We've been working on reaching out to stakeholders about the monthly outlook and the annual outlook as well, and seeing how people can use it. I think that this is something that kinda gets wrapped up.

27:26

We are training meteorologists at the National Weather Service to look at the monthly outlook when they're making weather forecasts.

27:35

They can see where there's high risk days that we're highlighting, Then also, when you have a storm event that comes in, it can make things that much worse.

27:46

And then also floodplain managers and local communities are looking at this product and very excited about this, because it will help them prepare for additional staffing if they need to close roads.

28:00

Even after an event– like I go on vacation to the Outer Banks and after a high tide flood event there is sand covering the roads.

28:08

So this will help people plan for removing sand from the roads and opening up much sooner, people like civil engineers, planning and construction.

28:20

Because when you're digging an underground garage or something like that, we heard sometimes you have saltwater intrusion because of the high tide flood events.

28:30

So they're going to be looking at this now as they're planning out those construction projects, to look at when it's a good time to be doing that excavation and when it's time to maybe not.

28:43

So, I think eventually, as these get wrapped up into weather forecasts and things, this will be that much more useful for a daily use, like planning your commute. I think getting your kids to school and stuff like that.

29:00

But we're working up to that.

29:04

Nicole: I was just going to sort of respond to that. There's really no average person because each of our decision making processes is going to vary based on where we are and how far into the future we're looking, right. And some of the examples that Karen just gave are fantastic.

29:23

Just like when we're planning anything in our lives, like say, even planning out for retirement, we try and think about all the things that are going to come our way. We can't know everything that our lives will experience between now and then, but we can take some educated guesses and we know there are some things that we can predict. And so we plan around those. In this case, high tide flooding on an annual and now monthly basis is something that we can predict in these locations.

29:51

And so, whatever your plans may be, your daily life, or your long term life, or your business decisions, you have information that is available to you for your decision support.

30:05

And so, I would really just encourage you to take a look at it, and work it into your short-term and long-term plans, if you're going to be around the coast for any period of time.

30:18

This is Analise, I was just wondering if I could follow up on that? I wanted to mention the fact that all of these products you've seen today, that we've demonstrated, the enhancements are based on community feedback, user, and stakeholder feedback. It's so important that we go out to these communities and understand what's actually happening on the ground and what their needs are so that we can effectively combine the variety of different products that we have. We've talked about the monthly outlook and then also the annual outlook, which combines decadal projections, and sea level rise scenarios. And the sea level rise scenario that's most specifically in tune with that region. So we've taken leaps and bounds to try to give people context for the information that we're supplying in addition to accessible data.

31:00

CO-OPs, the Center of Operational Oceanographic Products and Services, has an API that posts this information. And it will soon be on data.gov and included in that. So all of the information that we're providing to you is based on what we're hearing from our communities. And we're listening still. So, we want to hear what's necessary for the next generation of this process, these products, as well.

31:22

Thanks, Analise. That's really helpful.

31:24

We do have a few more questions that have come in, in just the last few minutes. So, I'm going to read another one out loud from Craig Miller at PBS.

31:33

Craig asks, do you favor managed retreat in some areas or will hard or soft coastal defenses hold the line in the long term given the conditions that we're projecting?

31:46

Nicole: That's a really tough one, so I'm going to jump in for my team.

31:53

Probably the word favor is not the one I would use to describe a response to that. It's going to vary. But the best solution is location by location.

32:04

One of the things that we are certainly very much aware of is that changes along the coast are highly localized. And so we can provide projections for communities and for regions, but when it comes to individual homes and neighborhoods

and towns, those folks will need to make those decisions for themselves. We are working very much with local communities and local industries and county and state officials to help them engage more fully and to be fully aware of the information that's available and to help them digest it so that they can make their own decisions that are right for them. I've been in communities in Southern Mississippi where the right decision is to overhaul their stormwater drainage. I have been in towns across other places in the Gulf Coast where they're looking at making investments in other places, you know, in a neighborhood.

33:04

So that the homes that are in harm's way most often might be relocated, those conversations are hard. They're very difficult to have. And so, our role at the National Ocean Service is to provide communities with as much capacity and capability to have those conversations themselves. We help convene, We provide technical assistance to help them understand the data, and then they really need to make the decisions for themselves in those cases.

33:33

And, we're very, very, I'll say very honored and humbled to be a part of those conversations because that is, it's really the future of neighborhoods and communities and Anyway, I can't I can't say enough about how we try to be as on the ground with those communities as possible, to give them as many possible outcomes, so that they can make those choices.

34:00

Thanks, Nicole, anything else from our other experts to add on that question?

34:07

OK, great, I think Nicole covered it really well.

34:10

And we're gonna go to an audio question from Mark Schleifstein, your line is open. OK, I think I got it working this time. You can hear me now?

34:22

Yes, OK. So, this is sort of a drill down question. Following up to what you guys were just talking about in Louisiana, there are a number of projects underway by the Army Corps of Engineers for building levees for elevating homes and by the state for diversion of water and sediment from the Mississippi River.

34:48

That's going to cause some water elevation on its own.

34:54

How are you making sure that this most recent information that you have on estimates of what sea rise will do to the normal tides, is taken up by the state and the Corps of Engineers and used in those projects?

35:26

This is William Sweet. We definitely work in very close collaboration with our federal partners, including the Army Corps of Engineers, and the Department of Defense. The Corps of Engineers, in particular, have been incorporating sea level rise into their project planning now for four decades.

35:44

So, as part of the U.S. federal sea level rise task force, one of our goals is to ensure that the latest science, the best models, the most recent observations, are synthesized and bundled up into data and products and services.

36:00

Not only for NOAA, but for other partners, like the Corps of Engineers, so that when they are building projects, they have the very best information that NOAA, NASA or, let's say, the USGS, our federal partners, produce. Because they are consumers of this science, as well. And so, just like our local stakeholders, the local communities, at the federal level, we really want to make sure, we really strive hard to make sure that from the local to the federal, that this information is provided in a timely manner and in ways that folks can use it in decision support for a project. So, we work closely with the Corps of Engineers, and they were all working off the same playbook.

36:49

Anyone else want to respond to that final question?

36:59

OK, well that looks like it was our last question.

37:03

So with that, I do want to, again, thank today's speaker, NOAA's, National Ocean Service Director, Nicole LeBoeuf, as well as our experts who joined for Q and A: Gregory, Karen, Analise and William.

37:16

For the media, will have a recording of today's briefing posted online shortly. And that'll be linked from both the NOAA press releases and media advisory, which you can find on noaa.gov in the news section.

37:30

And, finally, if you have any follow up questions, please don't hesitate to contact me, Kate Silverstein, at our National Ocean Service media Inbox. The address for that is oceanservicepress@noaa.gov. Again, that's oceanservicepress@noaa.gov.

37:50

That concludes today's video conference.

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