



TRANSCRIPT

Sea Level Rise Report Video Press Conference 2022

February 15, 2022 at 1:00 p.m. ET via GoToWebinar

Hosted by National Ocean Service

Media Advisory about briefing:

[NOAA, partners to issue long-term sea level projections for U.S.](#)

News release about Sea Level Rise Report:

[U.S. coastline to see up to a foot of sea level rise by 2050](#)

Participants:

Jennie Lyons

Rick Spinrad

Bill Nelson

Nicole LeBoeuf

William Sweet

Benjamin Hamlington

Katherine Brogan

0:04

LYONS: Hi, folks. We will be starting momentarily. Thank you.

4:30

Good afternoon, everyone. My name is Jennie Lyons, and I'm the Director of NOAA's Ocean Service Public Affairs.

4:37

I want to start by thanking you for joining us for this press conference today.

4:42

We're here to announce long term sea level rise projections, with some significant impacts by mid-century.

4:49

This press conference is being recorded.

4:51

If you do not wish to be recorded, please disconnect at this time.

4:56

We will begin with remarks from our speakers and then take questions from reporters.

5:01

If you would like to ask a question, click the hand icon in the GoToWebinar window next to your name, staff will call on each reporter who has virtually raised their hand and your line will be unmuted.

5:14

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

5:20

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

5:27

With that, I have the honor of welcoming administrator, Dr. Rick Spinrad to open our call.

5:35

SPINRAD: Thank you, Jennie. It really is my pleasure to join this event, and to welcome everyone.

5:42

Good afternoon, to all of you, before we dive into what this new report has to tell us about sea level rise. I just want to take a few minutes and acknowledge the guests who are joining us on the call today.

5:55

We have NASA Administrator, Senator Bill Nelson, here.

5:58

NASA, of course, plays an important partnering role in climate and sea level observations, particularly from space.

6:07

We also have Nicole Leboeuf, the Director of NOAA's National Ocean Service, who will provide an overview of what these projections mean and how communities can use them to plan ahead. Two expert scientists are also joining us today for the question and answer session.

6:23

We've got William Sweet from NOAA's National Ocean Service, and Ben Hamlington from NASA's Jet Propulsion Laboratory. Both are authors of this report, and can provide insights into the data.

6:36

Thank you all for being here today, and for helping us understand the significance of planning for sea level rise.

6:43

It's a critical piece of our national effort at NOAA to address climate change, and to build a climate ready nation.

6:53

To set the stage, NOAA and our predecessor organizations have measured and forecasted sea levels for two centuries. What we're reporting out today is historic.

7:03

The report now, just released with six federal partners, provides the most up-to-date, long-term sea level rise projections for all of the United States and territories.

7:15

Using cutting-edge Earth observation technology, this report shows what we can expect in terms of sea level rise, both in our own lifetime, and in future generations. It delivers projections by decade for the next 100 years and beyond.

7:31

The projections are based on tide gauge and satellite observations, and all the Model ensemble's from the sixth Assessment Report of the Intergovernmental Panel on Climate Change, the IPCC.

7:45

One of the most profound statements in this report is that the United States is expected to experience as much sea level rise in 30 years as we saw over the span of the entire last century.

8:00

The report predicts sea levels along the US coast will rise 10 to 12 inches, on average, by the year 2050, with amounts varying regionally, primarily due to land shifts. Current and future emissions matter.

8:16

But this will happen, no matter what we do about emissions.

8:22

If emissions continue at their current pace, it's likely that we will see at least two feet of sea level rise by the end of this century along the US. coastline.

8:32

Again, higher or lower in some regions, doodle, and shifts.

8:36

That estimate is on the conservative side.

8:39

Failing to curb future emissions could cause even greater impacts to Americans.

8:46

This report is a wakeup call for the United States, but it's a wake up call that comes with a silver lining.

8:52

It provides us with information needed to act now to best position ourselves for the future.

8:58

It's going to take all of us, governments, businesses, academia, communities, citizens, to make a difference in the future.

9:06

As NOAA works to build a climate-ready nation, this data can inform coastal communities and businesses about current and future vulnerabilities in the face of climate change.

9:18

This information can help those communities make smart decisions, keep people and property safe, over the long run.

9:26

I'll now turn it over to our next speaker, my colleague, NASA Administrator, Bill Nelson.

9:32

We will share how NASA contributes to providing the Earth observations needed to better understand our climate Administrator, Nelson.

9:59

Administrator, Nelson, you may still be on mute.

10:12

Yeah.

10:12

Can just click that.

10:16

Microphone icon? There we go. We see you.

10:22

We cannot hear you.

10:52

Thank you, folks, for your patience.

10:54

We are just getting Administrator Nelson's sound working.

11:05

That's great, too.

11:09

LYONS: We can hear you, Please, go ahead.

11:19

NELSON: Hey, thank you, Rick.

11:22

I'm really glad to be here with you today.

11:25

And it's important to underscore that this report supports previous studies and confirms what we've known all along. And that's sea levels are continuing to rise at a very alarming rate.

11:41

And it's endangering communities around the world.

11:46

The sea level rise along the US coastline is going to rise 10 to 12 inches on average.

11:55

And that's by 2050, and if you look back, look how much sea level has already risen, I had a Senate Commerce committee meeting down in Miami Beach about 10 years ago.

12:13

And the estimate was from the experts that it had already risen over the last 40 years from that .5 to 8 inches.

12:25

So that you can see that in the next 30 years, we could equal the total rise that we've seen over the past hundred years. And it's going to pose a major challenge in coastal cities.

12:43

And of course, it's not just the Atlantic or the Gulf. It's also the Pacific as well.

12:50

And the science is very clear.

12:52

And that means it's past time to take action to address this climate crisis.

13:02

So last month, NASA AND NOAA announced that 2021 was tied for the six warmest year.

13:13

This report highlights the challenges posed by a warming planet.

13:20

Climate change is causing sea levels to rise.

13:24

Ocean surface temperatures to warm, and moisture to build in the atmosphere, and all of these facts are leading to more intense and destructive storms.

13:37

And just think, back to 3 years ago, the hurricane that came up off the west coast of Cuba between there and the Yucatan Peninsula, it was only a category one. It became a category two, it's going north in the Gulf.

13:57

This is in August and all of a sudden, that hot water in the Gulf by the time over the last two days it accelerated from a category three to a category five when it hit dead on at Tyndall Air Force Base in the panhandle of Florida.

14:21

The science of the last 20 years has settled the question of human behavior that is driving this climate change.

14:32

And our next science ought to be focused on adaptation, mitigation, and responding to that climate change.

14:43

And certainly, we want to mitigate it, as well, when we want to stop it as much as we can.

14:49

But we're going to have a greater understanding. And we're going to have more precision. For example, over the next decade, NASA is going to put up five great observatories.

15:03

It's going to give us precision in our understanding of what's happening to the atmosphere to the ice, to the landmasses and to the waters.

15:17

We're gonna put up, later this year, a mission called SWAT.

15:21

and it's going to, for the first time, give us the elevation of our lakes, rivers, and streams, in addition to what we know on the elevation of the seats.

15:35

This Administration, the Biden Harris Administration's response to climate change.

15:41

It matches this threat.

15:46

It's whole of government, all hands on deck to meet this moment.

15:53

And, an example of what this report provides is to tell us that this is exactly what's happening in different agencies.

16:03

Finally, we are coming together to leverage their expertise to advance our understanding and planning for the future.

16:13

Rick, the partnership that we have with NOAA and EPA as well.

16:21

this is all a part of bringing in a whole of government, bringing in all the other agencies of government.

16:28

And in our agency, NASA, we are leveraging 60 years of space system development expertise, bringing this satellite technology.

16:41

down and putting it into a form that people can understand.

16:48

Our sea level researchers have years of experience studying how Earth's changing climate will affect the ocean.

16:56

NASA's work includes research forecasting on how much coastal flooding is happening, and we've got experience there in the last 10 years.

17:12

And also, as I mentioned, developing a sea level rise projection tool to help communities plan for the future.

17:22

And we're launching satellites to contribute data to a decades long record of global sea surface height.

17:31

And now, for the first time with this, what we're going to be able to know, that rise in the lakes and streams and rivers. NASA is committed to protecting our home planet by expanding our monitoring capabilities.

17:47

And I continue to ensure our climate data is not only accessible, but also understandable.

17:56

And that's because this planet is our home, and it's the only one that we have.

18:05

So, I'm glad that NASA could lend our expertise to this report, helping the decision makers, at every level, every scale, every agency, every level of government, and, indeed, the public, helping them make the decisions to do something about climate change.

18:33

Thanks, Rick, for letting me join in today.

18:41

SPINRAD: Bill, thank you.

18:42

It's such a pleasure to have NASA on as a partner on this important effort.

18:47

And I think the collaboration between our teams has been extraordinary, there are, of course, many, thanks across the board to our NOAA and NASA contributors, as well as many other agencies that are part of this report and several academic institutes also contributed.

19:05

It's not an overstatement to say that, bringing the best in class information and data across government to help American communities and businesses and families, especially in a highly equitable fashion.

19:19

Understand the risks that they face, and sea level rise really is, as Bill said, all hands on deck endeavor. And with that, I'm delighted to welcome our next speaker, the Director of NOAA's National Ocean Service, Nicole. Nicole the floor is yours.

19:35

LEBOEUF: Thank you, sir, and thank you all for taking the time to hear about this important issue.

19:41

The report we share with you today bears on our nation's economic health and prosperity and the well-being of all Americans.

19:50

Information in this report is made possible by NOAA tide gauges, our coastal sentinels tracking conditions along all coastal and Great Lakes states, making up the National Water Level Observation network.

20:04

Some of our gauges have been recording water level data for more than 100 years.

20:09

This network has long provided information vital for safe shipping and for predicting dangerous storm surge.

20:17

More recently, NOAA's water level network, allows us to monitor the steady creep of sea level rise and a rapid uptick in high-tide flooding.

20:27

It is from these measurements that we are able to understand what's happening year to year, and they allow us to look ahead and project what's coming.

20:36

In addition to what we heard from our administrator, Dr. Rick Spinrad, the technical report released today finds that sea level rise expected by 2050 will create a profound increase in the frequency of coastal flooding, even in the absence of storms, or heavy rainfall.

20:55

As some of you may recall, last July we gathered for NOAA's annual announcement that looks back at high tide flooding that we experienced over the past year and looks ahead to what is expected in the coming year.

21:08

During that announcement, I reported that some places experienced record breaking coastal flooding for the year 2020 and I said the same thing the year before about 2019.

21:20

I also explained that minor, high tide flooding, sometimes called nuisance or sunny day flooding, happens when tides reach anywhere from 1.75 to 2 feet above the daily average high tide.

21:33

High tide flooding causes water to spill onto streets and bubble up from storm drains that aren't built to handle that much water.

21:41

So far, in most places, this type of flooding has been mostly disruptive, more like an annoyance or an inconvenience.

21:49

However, as sea level rise continues, more damaging and destructive flooding that today typically occurs only during a big storm, will happen more regularly without severe weather, such as during a full moon or with the change in winds or currents.

22:07

Today's report finds that by 2050 moderate flooding, flooding that typically damages property and commerce is expected to occur 10 times as often as it does today.

22:20

What that means is that communities now dealing with nuisance flooding will be facing more damaging floods in just 30 years time.

22:30

Another way to think about this, is that a single flooding event, one that now happens every 4 to 5 years, on average, in coastal communities in the southeast United States, will occur 4 to 5 times per year.

22:46

I was born and raised on the Texas Gulf Coast.

22:50

I know the coastline is always changing.

22:52

That's just what it does, but I can tell you with complete confidence that these are not the kinds of changes that we grew up with.

23:01

Make no mistake, sea level rise is upon us.

23:06

This report highlights that NOAA's ability to issue increasingly precise projections of sea level change is more critical than ever, as sea levels and flood rates reached unprecedented levels in recorded history.

23:20

Now, as delivery of this information, today, makes it possible for businesses and communities to make informed decisions now, while there are still more options available to us.

23:31

And before it's too late to protect ourselves from the worst of these impacts, these data can help communities plan where to put their buildings, roadways, and essential infrastructure, like hospitals and schools.

23:43

And they can enable us all to work together to keep people safe, and our nation prosperous in the face of rapid and profound change.

23:53

With that, thank you, again, for your time, and thank you for joining us today.

23:58

Back to you, Dr. Spinrad.

24:02

SPINRAD: Thanks, Nicole. And thank you again, to NASA Administrator Bill Nelson, for speaking with us today.

24:08

As you can see, from the intros that we've made this report although sobering, projections can help inform coastal communities, businesses about current and future vulnerabilities in the face of climate change.

24:22

Building on the foundation for the climate ready nation concepts that I described earlier, this information can help those communities make smart decisions.

24:32

And can keep people and property safe over the long run. So now we have an opportunity to go onto the Q and A session. I'm going to throw it back over to Jennie Lyons, who will review the run-of-show, if you will, and how we're going to handle the questions and answers.

24:50

LYONS: Thank you all very much.

24:52

We will now take questions about today's news from the media, with two esteemed subject matter experts, to help answer those questions, William Sweet with NOAA's National Ocean Service, and Ben Hamlington with NASA's Jet Propulsion Lab.

25:10

Just to remind everyone, if you would like to ask a question, please click the hand icon in the GoToWebinar window next to your name and the attendees list that appears to the right of your screen.

25:22

Now, what communications will call upon each reporter who has a virtually raised hands.

25:27

Once you're called on your line will be unmuted.

25:30

You may have to unmute on your side as well.

25:33

You may also use the questions tool in your GoToWebinar window to type a question for our speakers about today's report. Please be sure to state or take your full name and media affiliation when asking your question.

25:47

Just a moment, please, while we queue up our first question.

25:54

BROGAN: Thanks, Jennie. Our first question comes from David Abel from The Boston Globe.

26:01

It's a written question, so I'm going to read it out.

26:04

Can you please tell us how the estimate of one foot of sea level rise by 2050 differs from previous reports? Also, does the report have projections for beyond 2050? Did these projections take into account worst-case scenario events such as the break-up of the Thwaites Glacier?

26:23

Thank you.

26:26

SPINRAD: This is Rick Spinrad, I'm going to suggest William, you take a first shot at that, if Ben wants to contribute as well, we can go to Ben.

26:34

SWEET: Sure, hi, thanks for that question.

26:37

We arrived at the one foot, or nearly one foot, on average, all United States coastline by using a combination of the models which are now really providing more confidence in their ability to predict 2050.

26:54

Put another way is from high to low they're all narrowed in to a more of a collapsed narrow view of what's going to occur.

27:02

Combined with using the tide gauge, an altimeter observations, regionally, are all pointing to the same direction, more sea level rise along the United States Coastline. This agreement is giving us confidence.

27:15

It's putting in our headlights as to what's most likely to occur by 2050.

27:21

Beyond that we are looking to bounce sort of the plausible range beyond 2150, into 2100 and beyond, because those types of up are unlikely, but possible outcomes are important and the known unknowns factor in.

27:37

And so, we provide this, so folks, won't be, um, well, let's just say they'll be prepared for a full range of clusters.

27:47

Ben, I would you like to comment further on?

Hamlington: I just to add on top of that, I think, to answer the question, kinda directly that the possible contribution of rapid I shore loss, including that associated with a collapse. Thwaites, that is accounted for within our scenarios. We have something we refer to as, kind of rapid ice sheet loss within the report that, that we do factor in. Those higher scenarios definitely capture that possibility. I think it's important to note that when we talk about rapid, I mean, that doesn't mean on the order of a few years, I mean, it's on the order of several decades into the future. So we do have kind of a narrower range with the model scenarios out to 2050.

28:26

And beyond that, we do our best to kind of capture the different possible storylines and how the Earth system or respond to ongoing climate. So, yes, we do provide information after 2050, and yes, we do consider the possibility of better at rapid ice sheet loss within our scenarios.

28:46

BROGAN: Thank you. Moving on to the next question.

28:48

We're gonna take a verbal question, and I'm gonna unmute the microphone for Seth Borenstein from the Associated Press, Seth, go ahead.

29:02

Seth, you might still need to unmute yourself.

29:07

BORENSTEIN: How's that? Can you hear me now?

29:09

Sure can, OK. Thank you for doing this. In terms of a sense of proportion, of the potential for damage. In the past, as you mentioned, it's been mostly nuisance flooding. Can you give us a sense of how many millions, hundreds of millions, or even billions of dollars we are looking at annually from just the high tide flooding?

29:31

And then you add in the sea level rise to storm damage, hurricanes. Even with winter storms, we get how big damages are we expecting each year in the 20th in mid-century range from this hundreds of millions, billions, tens of millions, millions, what are we looking at? Give a sense of proportion here.

29:55

SPINRAD: I'm going to say, I'm going to suggest William, if you take a shot that. I think we might also have Nicole still on the line, if you'd like to add a broader perspective since Nicole, you brought up some of the nuisance flooding issues in your comments.

30:10

SWEET: Thanks for that question.

30:13

You know, in the report, we definitely are dictating a flood regime shift.

30:17

And what we mean by that is the minor nuisance like flooding, that's coming, a growing problem in many Eastern Gulf Coast communities, some West Coast, is likely to become damaging flooding.

30:32

That extra foot on average or so around the country is just going to reach further inland and grow deeper and more severe.

30:41

It's hard to put an actual cost on this, we're talking about flooding, reaching about three feet or so above the average high tide. And there's mapping capabilities that know and others where you can actually look and zoom in and see what's in harm's way.

30:55

Well, one thing is for certain, when that type of flooding is predicted to occur now, the National Weather Service, in partnership with local emergency managers, this issue of coastal flood warning for serious risks to property in life.

31:10

And so, it's very disruptive, and it's very, um, it's something that, right now, causes a lot of, let's say, the response is definitely something that's immediate, and it's necessary. moving forward, without action, if that becomes routine, we're talking about 3, 4, 5 events per year, on average, they're going to be serious consequences of actions taken to the extent that we can put a financial dollar bill on that amount.

31:42

Is something I can't answer right now.

31:47

HAMLINGTON: So, just to, I can add one thing there, I mean, I certainly think an important thing here is that this report sits at the foundation of the type of assessments you're looking at. So, this updated, these updated scenarios projections, the assessment, the updated assessments.

32:00

I think that's, that's really a next step and a step beyond what was in this report, we're really trying to provide that authoritative information. That you can base these types of assessments.

32:08

BORENSTEIN: I guess what I'm asking is, how many, I mean, if you just look at New York City and Sandy, which was a storm, obviously.

32:16

But you haven't lost an awful lot of infrastructure right on the coast there. And then you look, you know, you just keep going down coast, Baltimore, Washington.

32:27

So, maybe just a sense of how much vulnerable property is out there.

32:33

I mean, I guess, know, some people, especially in the Midwest are gonna ask us, so what?

32:38

How about a sense of proportion here to tell readers. So what?

32:43

LEBOEUF: I'm happy to take a stab at that.

32:45

I am not an economist but I do agree with Ben and Billy that these data provide a baseline opportunity for all manner of our private industry, re-insurance insurance, real estate to begin to take a more granular look at this.

33:02

What I will say is that the magnitude of these impacts, direct and cascading, will be high, 40% of the US population lives within 60 miles of our coastlines. There will be highly variable impacts along those coastlines. But there's no denying that a large portion of our economy and revenue and tax base are right there front and center, in addition to that, I would say to our folks that live away from the coastlines. That almost everything that we use, eat, and wear comes through the base of our supply chain, which are our ports along our coast. So we can only begin to assess with these data, how we need to shore up our coastal infrastructure. From our ports to our military installations.

33:50

And this is why we really emphasize an all-of-government approach in development of these data, so that we can inform across the federal space, but it will be these kinds of data that allow the private sector to begin to take these risks into account and quantify at a regional scale, the kinds of impacts that you were asked about.

34:15

BROGAN: Thank you, Nicole.

34:17

We'll move on to the next question which is a written question: Steve Herman from Voice of America asks: What are the most important mitigation projects that could be undertaken by the Federal government in communities to address sea level rise?

34:38

SPINRAD: Again, I'll throw it over to both William and Ben, if you're up for a shot at that.

34:43

SWEET: Sure.

34:44

Well, I think it's very important to understand as sea level rise continues, that storm surge flooding, is replaced by tidal flooding.

34:57

You know, we're not holding back the tides. It eventually becomes an elevation issue.

35:02

Lower elevation lands are just at more risk of flooding, than higher.

35:09

What we've done in this report is help not only determine how sea level is going to rise around the country. It's not going to rise like it is and about the but also to determine what are the tides.

35:22

A storm's effects going to be on the landscape, and keeping it real, using ground truth.

35:31

thresholds that mean things on a day-to-day basis in people's lives.

35:36

So if we can put it in that context, we can then have folks understand what it is they need to do to mitigate against that.

35:44

Stormwater systems need to be examined because of the downhill gradient in many of these coastal areas, it is no longer – there's water starts to come up through the stormwater systems and spill into the streets.

35:57

When there's an opportunity to relocate major infrastructure: schools, fire departments, energy plants, elevation needs to be considered.

36:07

So, I think with these types of protections, and the types of maps, and information and science coming out of our agencies of NOAA and NASA, and USGS and others that they use this to use and plan for the future With higher sea levels. Ben, something you'd like to add?

36:26

HAMLINGTON: Yeah, I mean, it's certainly made a specific mitigation strategies, or strategies are kind of outside my area of expertise. But, but I will say, within this report, we had this very specific focus on this near term time period. So, from now up to 2050, that's really with the view that this is an immediate problem. These efforts are going to be underway to mitigate some of these effects, and we need to provide information to support those strategies and steps that are being taken. So, I do think that the way this port report is structured and organized, we are trying to provide the information that's needed there. And William already kinda touched on this, too. I think the observations that you heard about, some of the earlier presentations, really key to supporting the mitigation adaptation strategies that get put into place. So, I think it's kinda like cross the board support of these efforts, and hopefully this report is very useful and doing so.

37:16

BROGAN: Thank you. We'll move on to our next question, which is coming from Zach Coleman at Politico, Zach I'm gonna unmute you, and you might need to unmute yourself as well. Go ahead, Zach.

37:37

And I'm gonna, just Zach just a second to unmute himself.

37:52

OK, Zach, I'm going to circle back around in a few minutes. Thanks.

38:00

Um, let me take a check.

38:05

We have another question verbally from Alex Harris with the Miami Herald. Alex.

38:11

I'm going to unmute you, and you might need to unmute yourself as well. Go ahead.

38:18

HARRIS: Hey, there, so I have a question about how these sea rise projections differ geographically. You say a foot on average? Where will we see more, will we see the least around the country?

38:33

SWEET: The average number, for 100th 10 to 12 inches will largely be exceeded or reached or exceeded along most of the east and Gulf Coast coasts.

38:47

For a couple reasons, primarily, land subsidence, land syncing, and many of these geographic reasons for both natural and unnatural reasons.

38:57

Natural land compaction, the sediments, as is the issue in much of the Mississippi area.

39:04

Unnatural would be withdrawal freshwater and subsurface fossil fuels for consumption, which is an issue along much of the Gulf as well as the Mid-atlantic.

39:15

And so those factors will contribute to a higher than average sea level rise.

39:22

When you couple that with flooding, the high tide flooding as mentioned, sort of follow suit. There's just more variability when the winds blow.

39:32

Go out, sailing: It really sets up water along the east coast or Gulf coast, where you have a wide.

39:39

Shallow, continental shelf compared to the West Coast.

39:42

So, it's a combination of those reasons where higher than average sea level rise, and a very energetic ocean that will allow you more flooding to occur, higher than average, amounts, over most the east and Gulf Coast, compared to the west coast. And our island states and territories.

40:03

HAMLINGTON: I can also add real, real quick on that we, from the analysis done in the report, some of the figures that you'll see there, there is this east coast/ west coast separation where we have higher rates on the higher projections on the east coast versus the west coast. So, William already touched on an important factor there. Certainly subsidence is contributing to that.

40:23

But also changes in ocean dynamics associated with changes in the Gulf Stream, For instance, that's also driving slightly higher projections for the east coast than compared to the west coast. So we do see a little bit of this east coast/west coast, separation, I think, for the west coast, it's important to note that

we're not going to see below significantly below the global average. For instance, I live here on the west coast. With some of our observational records, we've seen a little bit less suitable raised and we have in other parts of the US. coastlines but the expectation is that sea level rise on the west coast while also can attract and keep up with the global average.

40:58

So we do align this report, trying to explain those regional differences, and we do have this process based understanding of where those differences come from. And then those go into our projections.

41:12

BROGAN: Thank you, William and Ben. I'm going to do a question in writing from Ezra Romero, from KQED, the NPR station for the San Francisco Bay Area. And he asks, with the change from the 2017 numbers, how do you advise regions like the San Francisco Bay Area with millions of residents to alter their plans that are currently based on the 2017 numbers? And, as a follow up Yes. And how do you think it might change states, like, California sea level rise plans that are currently ongoing?

41:51

And as a follow up, I've had a few reporters in the question bar ask, if you could just be sure to touch on one of the original questions that was asked about how the 2050 projections differ than past estimates in the 2017 report.

42:10

SPINRAD: I'm going to say you guys are doing such a good job complementing each other in your answer. So, let's go ahead and start with Ben, and then throw it over to William.

42:17

HAMLINGTON: Yeah, so I'm gonna maybe give a slightly more technical answer on why we see a difference in 2050. So, one of the reasons we see, and not, just to reiterate what we do. See, we see a narrower range between the scenarios in 2050, the previous report, and this is really just driven by an improved understanding of what's going to happen with the ice sheets.

42:38

Right, so the ice sheet models, who have advanced knowledge, scientific knowledge, has advanced, and some of these processes that can contribute to sea level rise, that gets built directly into our scenarios, and the trajectory has essentially changed from what was in the 2015 report. So it really does reflect the latest and greatest science. A lot of that was assessed within the IPCC AR6. So, when you factor that in, you do get this narrower range in 2050. We add in the observation agreement, and I think we can provide a little more certainty, and what's going to happen now, to up to 2050.

43:12

In terms of the question about California's specifically, obviously again, I live here in California, and well aware of kind of the planning activity, plans that have been made and the numbers that are being used.

43:24

I think it's important that we continue to support the information conveyed that, this is the latest science, we're trying to capture that within our scenarios, This scenario framing, which I'll let William

Speak to, in just a second, it really does allow us to provide a plausible range that that doesn't have dramatic shifts from one report to the other.

43:44

So, I think that trying to frame these scenarios, how they've changed, according to the science, and they communicate that out, I think that's going to be critical here in California, as well as it is in other places.

43:54

But, William, feel free to jump in.

43:57

SWEET: Thanks, Ben. Right, yeah.

44:01

One of the benefits and goals of the task force, in general, is to sort of bound the plausible rise amounts that could happen.

44:10

We start with global, and then we downscale based on that as our science improves based on better modeling, better understand our ice sheets, more observations.

44:21

One of our goals is to whittle down the plausible range by 2100 while still considering sort of the known unknowns that really could contribute sort of wildcards to higher amounts of sea level rise.

44:33

Um, then might be, you know, the more likely scenarios.

44:37

So, 2050 years in our headlights and we can speak with sort of confidence and clarity as to what we expect to occur.

44:46

2100 and beyond, we're going to continue as the science advances to provide the best actual information so communities can plan.

44:56

Northern California is not alone, and, you know, folks, planning ahead, the Army Corps of Engineers, has done a remarkable job for decades, at incorporating sea level rise into their planning.

45:07

And it's oftentimes, you know, risk based in terms of how you anticipate that asset or system of systems functioning under higher sea level and doing those stress tests.

45:19

So, adaptive management is oftentimes the path that folks take in decision making because the uncertain future is inherently uncertain, but a goal of our interagency task force is to provide as much certainty, or at least clarity as to what could occur. Inbound, the problem, so folks can respond and plan accordingly.

45:43

BROGAN: Thank you.

45:44

Our next question is a verbal question from Evan Bush at NBC. Evan, I'm unmuting your line now. Go ahead, please.

45:56

Yeah, thanks for doing this. Um, my question is just about emissions scenarios. What assumptions underlie the 2050, 10 to 12 inches measurements, I mean, is that a high emissions scenario? I guess I'm interested in that.

46:14

And then the second question is just, can you apply this to understanding domestic climate migration at all? I mean, how many people might have to move by 2050?

46:28

As a result of these numbers, thank you.

46:32

SPINRAD: Ben, let's go to you first on the scenario space, and then William can jump in.

46:38

HAMLINGTON: Yep. Yeah, it's a good question about the kind of the storylines attached to our different scenarios. So we have the low to high scenario, which are defined by those 2100 global mean sea level target dates. So, the key thing in 2050 is that those scenarios There's not a great deal of divergence. So, I already talked about kind of the narrower range from low to high in 2050.

46:59

So We we have a little more confidence regardless of emissions scenario out to 2050 of kind of what window we're going through with sea level rise. That all changes as you get out to 2100 and beyond. Right?

47:13

So a simple way saying this, that, the higher your emissions, the higher your warming is, the higher our scenario that that you're going to have to choose, or the pathway that you'll be on.

47:23

So it's important to, to kind of set, and we do this in the report, right? We separate out these two time periods a little bit.

47:30

We have this 2050 time period where there's not a lot of divergence within the scenarios, and not a lot of emissions dependants, maybe another way of saying it.

47:38

Then beyond that, they start to become much more dependent on emissions pathways and future emissions.

47:44

And I think the other piece to consider here is that, there are these, and I already mentioned this with Thwaites, There are these rapid ice sheet loss scenarios. That could contribute to sea level. Those also helped drive towards those higher scenarios like the intermediate high and high scenario going into the future.

47:59

So, those scenarios are really driven by high emissions, high warming, plus the potential possibility of this rapid ice sheet loss as well. So we do try to provide storylines that attach to each of these.

48:13

Those storylines are a little bit different in 2050 then and beyond, and again, we try to convey that with the structure of the report, and also our explanations of it, But William, I'll kick it to you and also to answer that question of migration.

48:27

SWEET: Thanks.

48:29

I don't think we're talking about migrating at 2050.

48:33

You know, that the amount of rise that we're saying is, you know, considered more likely, are expected in the next 30 years, is, the amount is we can adapt to.

48:47

I think it's, but it's important to understand what our vulnerabilities are at the coast right now, and one of the goals of this task force in this report was to help sort of further graduate risk within the floodplain defined by FEMA. We know flood risk is not the same.

49:03

And we know that it is changing due to sea level rise, and if we can match that to ground truth impacts, that makes sense to people.

49:12

They can understand sort of what have the consequences been to these types of flooding? What can we do to mitigate and prepare for more of this type of flooding?

49:21

Whether it is, you know, green infrastructure to help, you know, provide protection Where we recognize there are vulnerabilities. Whether it's upgrading storm and wastewater systems to deal with higher sea levels. It's, you know, providing the maps and the tools that folks can understand where things are currently situated and how best to reconcile with the future projections.

49:45

We will find a way to adapt and mitigate as we move forward.

49:51

But the first part is really understanding, and becoming aware of what we're actually going to be dealing with, with the maps and the data is that this, these groups, and their agencies sets of folks are putting out, is to do just that. So, no one has taken by surprise, and the planning process can begin now to mitigate, mitigate against the impacts that are coming down the road.

50:17

BROGAN: Thanks William. Our next question has a written question from Dina Pulver with USA Today.

50:24

She asks: Which parts of the country, just, do you expect to see the biggest increases from sea level rise, which I believe you spoke to previously, but she also asked, and what impact is sea level rise going to have on storm surge events?

50:43

SPINRAD: William, you wanna take a shot first?

50:46

SWEET: Sure.

50:47

Right now, we definitely have a hotspot of sea level rise in the sort of the central Gulf, you know, areas of Louisiana. Land is disappearing in front of people's eyes over the decades, within generations. There are stories of land loss.

51:02

That's being projected forward into the future and a lot of that's due to that land subsidy, insets, largely a natural response to the compaction of sediments.

51:11

There are some higher rates of sea level rise in areas of Texas coastline and all the way to Louisiana, as well as the Mid Atlantic as well.

51:21

Some of that is due to adjustments to the last ice age, you know, t10,000 years ago or so, as well as extraction of drinking water, fossil fuel things that can be changed. Right? If you end the disturbance, you can maybe mitigate. Mitigate against some future sea level rise.

51:42

Um, you know the impacts of that are largely following suit where we have higher sea level rise. You have more chance for increasing flood risk.

51:51

And that we're trying to graduate and granulate around the coast, as well. So folks get a sense of: What does a change in mean sea level actually mean to our community? So decisions can be made now to prepare for the future.

52:03

Ben?

52:04

HAMLINGTON: Thanks. Yeah, not too much to add. I think William covered in terms of the regional differences.

52:10

I think just to add one item there, I mean, that with the west coast, we certainly do see lower amounts of projected sea level rise. But those are not relative to lower relative to the global average, right.

52:21

So I think just kinda framing all these together, it's important as well.

52:27

LYONS: Before we, as we queue up the next question, I just want to pop in to know, we have about 10 more minutes for this press call, so time for a couple more questions.

52:37

BROGAN: Thanks.

52:41

Thanks, Jennie. I'm gonna open it up verbally to Joe Bartosik .

52:49

from KTUU in Alaska, and then it is back to Zach with Politico. Zach, I promise, we're going to you next.

52:57

Zach, you are unmuted, you might need to unmute yourself.

53:03

Can you hear me? I'm sorry, Joe. Yes.

53:05

Go ahead.

53:06

COLEMAN: Alright, Sorry about that earlier. Um, so. Yeah, I just wanted to get a sense.

53:12

And you might have touched on this a little bit, but I mean, is there a sense that in any regions that we've exceeded our ability to adapt to this type of sea level rise and, you know, what message is there for less well off communities? And we were talking about engineering our way out of some of this. I mean, not every community can easily afford to do that. So what's, what's the message there?

53:37

SPINRAD: Before I throw it over to, and I'm gonna suggest William then Ben, this is Rick Spinrad again. And I do want to point out, I was looking for a place to make this comment in the scene.

53:46

This question seems appropriate.

53:48

And that is that we look at this particular study, and they, uh, summarized findings in a broad context. And so, as many of you know, we're looking right now at how we're going to end up spending close to \$3 billion under them.

54:04

Bipartisan infrastructure law, some of which is tied to mitigating and dealing with slots.

54:10

And so I think part of your question does broaden the scope of what we're trying to do it now with respect to our operational responsibility. So I throw it over to William, but I'd ask the report is to recognize that, this is all part of a much, much broader system context within NOAA's mission. Certainly.

54:31

SWEET: Yeah, thank you.

54:33

Well, no, those are those are important questions, right?

54:37

Being able to respond oftentimes depends on the capacity of the area to respond, the population, demographics and so often.

54:46

But what is required is information about the changing environment as well as information about the current snapshot of how, you know, what is the land forms. What is the maps, the topography, the bathymetry, and we're committed all agencies that providing free and available data that based upon the best science and the best data.

55:09

So all communities, big and small, rural, urban, have this information, and they can help determine what's best for them, what they're able to do, what the options are, and obviously, this is still a national conversation.

55:24

We do know that, you know, many solutions are typically now found and funded locally, and, you know, that's sort of how things are going right now. But as impacts become more widespread. I suspect it's going to be still in our national conversation and dialog of how to best to adapt at this holistically across the country.

55:50

HAMLINGTON: I can just add quickly, I think, he really nailed that. I think that the key thing for me is that we're really providing this information across the entirety of the US. coastline, for the Caribbean Hawaiian Islands or the Pacific Islands, and also for Alaska. So this is good information that can be used for planning. So, I think that's a big part of what we're doing here.

56:10

LEBOEUF: And I'd like to just add to those comments that we do recognize that there are communities around, are coastlines that are more vulnerable to these kinds of impacts because of their history and being underserved to begin with. So having this information available to everyone, community planners, decision makers at all levels of government is really the first step. It's also enabling the communities themselves to see their impacts on a map where they live and helps them to have a voice in this process.

56:43

But we are focused on making sure that this information is widely available and translatable to the public for that very reason.

56:52

It helps just to get us as much as possible on a level playing field.

56:57

But we will absolutely be looking at end user needs, particularly in vulnerable communities.

57:05

BROGAN: Thank you Nicole.

57:07

We just heard from Zach with Politico. I'm going to try to open the line for Joe with KTUU.

57:13

Joe, you're unmuted and you might need to unmute yourself as well if you'd like to ask your question verbally.

57:22

Otherwise, I will go ahead and read it.

57:33

OK, I'm gonna go ahead and read it, Joe, with KTUU, asks:

57:40

He's asking about Alaska, and asked what areas are likely to see the most impact.

57:48

There are already native villages that are having to relocate and rebuild as a result of sea level rise, and he also mentioned that south-east Alaska uses a lot of ferry's for transportation, so there's infrastructure already built, um, or the current system. What is being done to prepare and help mitigate?

58:13

Dealing with infrastructure during when sea level rise is a factor.

58:19

Well, yeah.

58:22

SWEET: I'll take a quick answer and hand it to Ben.

58:24

Well, you know, south-east Alaska is fairly unique and in our country not the world where sea levels are actually dropping fairly rapidly and that's because of the relative contribution of land rebounding out of the ocean out of the water.

58:40

Whether or not that rate of land rising will continue to outpace the amount of ocean rising, we will see.

58:48

But we project that so folks can get a sense of, you know, how long might that persist, poses a different challenge for maritime, transportation and commerce

58:59

You know, the water starts – the what you thought was coastline, not so coastline, challenging with piers and docks and so forth.

59:07

Northern Alaska is different.

59:09

The response there is one of sinking or of land rising of having a parent sea level rise, and that's projected to continue coupled with the fact that we're losing sea ice in these areas, and ocean roughness and storms and wave and erosion.

59:23

You know, that's a that's a series of compounding problems that we hope to tackle next around in this task force really bringing in sort of the waves and erosion and landform changes to better kind of address those projected changes.

59:38

But, you know, Alaska is obviously observation sparse, you know – giant lands, a lot of coastline.

59:46

But, you know, really leaning on our satellites and working with our counterparts at NASA to really get up no mile high view as to what's going on to really provide information. Which, in this case, when thinking versus land rising within a state, poses a series of, of challenges, that, we hope to at least provide information, so that they can address and take appropriate response.

1:00:12

HAMLINGTON: Not much data on my end, other than, I think it's a really notable difference between the Southern Coast of Alaska and the Northern Parts of Alaska within the report. And William touched on an important thing, I think, that in some of these areas, the satellite role, satellite observations will be playing an increasingly important role as we try to understand these processes, and then factor them into to the projections that we're providing.

1:00:36

LYONS: Think we have time for just one last quick question before we close the call. Thanks.

1:00:44

BROGAN Thanks Jennie.

1:00:45

Our final question is from Sean Sublet the lead with the Richmond Times-Dispatch.

1:00:52

Go ahead Sean. You're unmuted.

1:00:54

SUBLET: Thank you. Very much appreciate the two quick questions as we close one. Could either one of you speak to how confident you are about these projections compared to paleoclimate reconstructions of sea level rise, in other words how we know this is so much different than than centuries ago.

1:01:13

Too, is there anything additional we can say about inland bays, estuaries, tidal rivers aside from the general 10 to 12 inch scenario? Thank you.

1:01:26

SPINRAD: Ben you want to start on confidence and then throw it to William?

1:01:30

HAMLINGTON: Yep, yes. So the way we so I would say that these scenarios in this report really do capture the latest and greatest science. And it's very consistent with what was in the IPCC Fifth Assessment Report. So these are the way this works is we model the individual processes that contribute to sea level, and then we put those together to generate these scenarios. So there's an incredible amount of effort and observations that goes into understanding the future projections for each individual scenario. A huge amounts of, of, huge numbers of scientists who are working on each one of these. Individually. So, our understanding of what's been happening over the past century, and then what might happen in the future, as has really advanced dramatically. And we build all that, and put those pieces together, and build that into this report. So, I would say that in terms of the near term, out to 2050, we have quite a bit of confidence.

1:02:22

And then we, where the models show disagreement or uncertainty, we factor that in beyond 2050.

1:02:28

So, yeah.

1:02:30

Just to make it clear, I think we are trying to capture the full extent of our scientific understanding within these scenarios.

1:02:38

SWEET: In closing out that question, I think, you know, as we move inland up the estuaries up these tidal creeks, you know, the tide, it's gonna go, or the tide wants to go to this, has implications for any tightly connected body of water. It should X will experience sea, level rise in the impacts associated with it. You know, this is area where fresh meets the salt. So there's implications of saltwater, intrusion of aquifers in a foreign land of drinking water.

1:03:06

And the fact that as we start to experience heavier rain from a warming climate, the two of them meet together storm surges and rainfall meeting, it's a challenging place to get right for long-term predictions and short-term predictions. So, it's something we're going to continue to work on, both weather, weather scale forecasting, and longer term probabilistic assessments, so folks can plan both for urban environments and their natural environments, like in terms of management.

1:03:39

LYONS: Thank you all. With that, I just want to thank, again, today's speakers, know Administrator Rick Spinrad NASA Administrator, Bill Nelson, NOAA National Ocean Service Director, Nicole LeBoeuf, and our

subject matter experts, William Sweet of NOAA, and Ben Hamlington of NASA, for their time and participation.

1:03:58

A recording of today's briefing will be online shortly in both our press release and media advisory, both available on our dot gov in the News section.

1:04:07

And, finally, if you have any follow up questions, please contact me, Jennie Lyons at J, E, N, N, I, E dot L, Y, O, N, S, at N, O, A, A dot gov.

1:04:22

Again, that's Jay and I T dot L Y O N S, at NOAA dot gov. This concludes today's video press conference. Thank you so much for joining us.