

U.S. DEPARTMENT OF COMMERCE

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
(NOAA)

HYDROGRAPHIC SERVICES REVIEW PANEL

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PUBLIC MEETING

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THURSDAY  
APRIL 5, 2018

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The Hydrographic Services Review Panel  
met at the Atton Brickell Hotel, 1500 SW 1st Ave,  
Miami, Florida, at 8:30 a.m., Joyce Miller,  
Chair, presiding.

MEMBERS PRESENT

JOYCE E. MILLER, HSRP Chair  
EDWARD J. SAADE, HSRP Vice Chair  
DR. LARRY ATKINSON  
SEAN M. DUFFY, SR.  
LINDSAY GEE  
KIM HALL  
EDWARD J. KELLY  
CAROL LOCKHART  
DR. DAVID MAUNE  
CAPTAIN ANNE MCINTYRE  
CAPTAIN (ret. USCG) ED PAGE  
CAPTAIN SALVATORE RASSELLO

JULIE THOMAS

GARY THOMPSON

## NON-VOTING MEMBERS

ANDY ARMSTRONG, Co-Director, NOAA/University  
of New Hampshire Joint Hydrographic  
Center

JULIANA BLACKWELL, Director, National  
Geodetic Survey, NOS

RICH EDWING, Director, Center for  
Operational Oceanographic Products and  
Services, NOS

## STAFF PRESENT

REAR ADMIRAL SHEP SMITH, HSRP Designated  
Federal Official; Director, Office of  
Coast Survey

DR. W. RUSSELL CALLENDER, Assistant  
Administrator, NOS

MIKE ASLAKSEN, Chief, Remote Sensing  
Division, NGS, NOS

GLENN BOLEDOVICH, Policy Director, NOS PCAD  
CAPTAIN RICK BRENNAN, Chief, Hydrographic  
Surveys Division

CAPTAIN JAMES CROCKER, OMAO

VIRGINIA DENTLER, NOS

CAPT ELIZABETH KRETOVIC, Deputy Hydrographer, OCS

RACHEL MEDLEY, Chief, Customer Affairs Branch

LYNNE MERSFELDER-LEWIS, HSRP Coordinator

JIM RICE, NOS PCAD

DENIS RIORDAN, NGS

KYLE WARD, OCS

**ALSO PRESENT**

**DAVID ANDERTON, Assistant Director, Port  
Everglades**

**DR. SAMANTHA DANCHUK, Science Coordinator,  
Southeast Florida Climate Compact;  
Assistant Director, Broward County  
Environmental Protection and Growth  
Management Department, Environmental  
Planning and Community Resilience  
Division**

**THE HONORABLE KRISTIN JACOBS, Florida House  
of Representatives**

**THE HONORABLE CHIP LAMARCA, Broward County  
Commission**

**JAMES F. MURLEY, Chief Resilience Officer,  
Regulatory and Economic Resources  
Department, Miami-Dade County**

**ANTHONY REYNES, Marine Program Leader, Miami  
Forecast Office, National Weather  
Service, NOAA**

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## P-R-O-C-E-E-D-I-N-G-S

(8:39 a.m.)

CHAIR MILLER: Good morning. I call the second day session of the HSRP here in Miami to order. This morning, we'll be providing a short recap of yesterday's session, which was we had a panel on the disaster response and updates from our HSRP Navigation Services Team, Juliana Blackwell, Rich Edwing, and Admiral Smith.

I think first of all what I'm going to do is go around the room to ask HSRP members to make any comments on yesterday's session. Oh, before I do that, I forgot. Could we have any visitors, any people who are here in our audience introduce themselves very briefly? So any of our public members. Do we have a microphone?

So this is for members of the public who have joined us today. I think there are two folks in the back row?

MR. REYNES: Hello everyone, I'm Tony Reynes. I'm going to be one of your presenters later today representing the National Weather

1 Service. So thank you for the invitation, and  
2 looking forward to the presentation.

3 MR. DELLINGER: My name is Dave  
4 Dellinger. I'm the Port Meteorological Officer  
5 for South Florida. I've been here for the entire  
6 event.

7 CHAIR MILLER: Okay, thank you very  
8 much.

9 MS. PLAFF: Hi, I'm --

10 CHAIR MILLER: Oh, sorry.

11 MS. PLAFF: I'm Lacy Plaff. I'm with  
12 the U.S. Army Corps of Engineer in the Programs  
13 Division.

14 CHAIR MILLER: Okay, thank you very  
15 much. Starting with Ed. This Ed. I'd like for  
16 folks to give any important issues from yesterday  
17 and also say what things you think have sort of  
18 bubbled to the top for our recommendation letter.

19 VICE CHAIR SAADE: Thanks, Joyce.  
20 Good morning, everyone. So first thing relative  
21 to the recommendation letter, with time  
22 constraints yesterday, we never really got a

1 chance to thank everybody on that panel for the  
2 quality of the work that they performed.

3 And somehow, I think we should  
4 acknowledge all that they did in terms of maybe  
5 saving people's lives and certainly saving  
6 people's economic lives by being able to bring  
7 all those capabilities to both the areas here  
8 around Miami in Florida as well as Puerto Rico  
9 and even with Harvey in Houston.

10 So, some words to that effect I think  
11 are important. And I wish we could have said it  
12 to them while we were here, but we should find a  
13 way to do it directly to them as well. I can't  
14 remember which panel member talked about the  
15 promoting the idea of doing exercise and  
16 training, and I thought that was a really good  
17 idea, especially in the context that most the  
18 people around this table in their day jobs have  
19 to be involved with those types of things  
20 relative to terrorist activity and all that.

21 Obviously these hurricane events  
22 equally got to the level of impact of a terrorist

1 event that all the different agencies are more  
2 than happy to get involved with and practice for.  
3 So I'd say we should advocate to that. And  
4 that's enough for right now for me. Thanks.

5 MS. BLACKWELL: Good morning. I'm  
6 Juliana Blackwell, the Director of the National  
7 Geodetic Survey.

8 The one I guess takeaway from the  
9 discussion yesterday about emergency response  
10 efforts and opening up the port was the different  
11 groups that were up there that were commenting on  
12 how they would like to continue to be a part of  
13 the planning and probably some of the exercises  
14 that are conducted that were discussed and how  
15 there's just an opportunity for the community  
16 itself to bring other players into that planning  
17 process and preparation process.

18 So I think the takeaway is not only  
19 for the community here but for the NOAA entities  
20 that are involved, is to make sure that we have  
21 the right people that are a part of the  
22 discussion and are part of those types of

1 planning and simulations so that we can all do  
2 our best when we're called upon. Thank you.

3 CAPT ARMSTRONG: Good morning. I'm  
4 Andy Armstrong, Co-Director of the Joint  
5 Hydrographic Center. I was struck by several  
6 things yesterday. First of all, how complex the  
7 problem is in planning for and reacting to --  
8 thank you. How complex and challenging it is to  
9 react to and respond to the kind of sequence of  
10 storms that occurred here that we heard about.

11 And first of all, how well the people  
12 did in responding, but how there remains plenty  
13 of room for improvement. So it seems like there  
14 were not enough survey teams, not enough vessels,  
15 not enough gear, not enough staff to respond as  
16 fast as we all would like.

17 I also was struck at the value of the  
18 NOAA ship being able to go into a place like  
19 Puerto Rico, self-contained, without needing  
20 shore support. And then I was impressed at  
21 really the dedication of everybody involved in  
22 the process.

1                   MEMBER HALL: Hi, I'm Kim Hall,  
2 because I know we have not been identifying  
3 ourselves for the court reporter here today. I  
4 want to kind of reiterate what we've heard. I  
5 think part of what we heard though yesterday as  
6 well was the NOAA products that were available  
7 for both planning, during, and post, were very  
8 valuable. So, from the HSRP-related aspect of  
9 what we heard yesterday, we have a lot of things  
10 that maybe weren't, but very interesting.

11                   I think that kind of validates all the  
12 work that we do and that NOAA does. That these  
13 are important things. Faster is always better  
14 for people who need to make the moves, but not  
15 necessarily always better for the safety of  
16 what's going on.

17                   I think the key thing, and I'm  
18 probably stealing Anne's thunder, is leveraging  
19 public-private partnership. And I think as we  
20 peel back the onion about what the Acting  
21 Administrator has talked to us about, it will be  
22 interesting to see how that plays a part for

1 HSRP.

2 And yes, exercises are very important.  
3 I think sometimes the private part gets forgotten  
4 in public-private partnerships. So I'm not sure  
5 for HSRP, but I think that's a good just kind of  
6 general, let's see what the private industry is  
7 doing and how you bring that to bear, especially  
8 for the services that NOAA provides related to  
9 hydrography. Thanks.

10 MEMBER DUFFY: Sean Duffy of the Big  
11 River Coalition, Louisiana Maritime Association.  
12 So yesterday, I was listening to the recovery  
13 efforts, and I had the pleasure of taking over  
14 the steamship Louisiana the Friday before  
15 Hurricane Katrina hit and went from being a very  
16 happy moment to oh, crap, my life will never be  
17 the same moment within a couple of days.

18 So you know, I thought about it  
19 yesterday, and I remember some of those times,  
20 the recovery from Hurricane Katrina, we had a  
21 model in place that we have communications  
22 through telephone calls and were set up. Well,

1 in Katrina, all the phone systems were wiped out.

2 I also like to remember the humor in  
3 it, and over one of those calls, when we did get  
4 connected back together, the Coast Guard had no  
5 backup servers, so we were communicating to the  
6 Coast Guard with a young female officer who had  
7 to share her private email address that was  
8 tigerlilly965@yahoo.com.

9 And that is how we communicated with  
10 the Coast Guard. Of course, we learned a lot of  
11 lessons then, but I guess my point is the number  
12 of events that we've gone through with each  
13 hurricane, tropical storm system, the Deepwater  
14 Horizon event, a Tintomara collision. Each one  
15 of those, those are three events that really  
16 demanded a great deal of us to recover from, and  
17 they were all very different, and the response  
18 was very different.

19 But having those calls and  
20 communications with each one starts off with the  
21 Weather Service, giving an update on what's  
22 expected with the weather system, whether it's a

1 high-water hurricane event, low-water event, the  
2 oil spill, a lot of the modeling of where the  
3 flows were expected to go was very critical in  
4 each one of those events.

5 But because each event is so  
6 different, the response is different, and the  
7 demands and the needs are completely different.  
8 But having the right people engaged and involved.  
9 And one thing that I can say is that through all  
10 those life was very different type events, we all  
11 came together and even competitors would send  
12 fuel to their competition if that's what they  
13 needed to get things going to recover.

14 A lot of assets deployment done  
15 through that model. So, I don't know what the  
16 next life-changing event for us will be, but I  
17 have faith that there will be another one coming  
18 and that we will try to get through it through  
19 that same game plan. Thank you.

20 MEMBER THOMPSON: Gary Thompson, North  
21 Carolina Geodetic Survey and North Carolina  
22 Emergency Management. Two areas yesterday.

1 Exercises. I think they're very critical. We  
2 just completed a state-wide exercise in North  
3 Carolina and just received the kind of After  
4 Action Report.

5 So I think exercises are very, very  
6 critical to prepare yourself for any type of  
7 disaster, especially when you include your  
8 partners in the events. It helps you find out  
9 where you have weaknesses, not only in  
10 communication, but in procedures. I was glad to  
11 hear that yesterday about the exercises.

12 The other area was information about  
13 gauges. Many areas are installing gauges. We in  
14 North Carolina have a network that continues to  
15 grow, and it's very important to hear information  
16 about the latest technology that we can use.

17 Thanks.

18 MEMBER LOCKHART: So I'm going to  
19 reiterate what Andy said about having the NOAA  
20 ship being able to go down to Puerto Rico and  
21 operate there. I think as people that run  
22 private businesses, when we look at hurricane

1 response, it's really easy for us to stand up and  
2 say, oh, we can get a small boat into port.

3 There's companies all over that have these small  
4 boats in ports.

5 And while that may be true, there is  
6 also a role for these larger ships that would be  
7 really hard to contract otherwise. So I think  
8 it's important to remember that there's a lot of  
9 different assets out there, and some of those are  
10 going to be government assets that can be  
11 replaced. So the fleet recapitalization is still  
12 really important.

13 MEMBER THOMAS: Julie Thomas with  
14 Scripps and Ocean Observing Systems. I was just  
15 going to make a comment, because I was thinking  
16 last night on this precision navigation and going  
17 forward, that the topics that we might address.  
18 And to me, that has been a real fun project to  
19 work on with LA-Long Beach just because it has  
20 highlighted the public-private partnerships,  
21 public being both NOAA and the Army Corps and  
22 private, many, many partners in industry.

1           And it's really taken us three and a  
2 half years there before the industry had the  
3 confidence in what we were doing as the public  
4 sector to use our data, our models, observations,  
5 et cetera. And I think that there is a big  
6 lesson there learned as far as how do we build up  
7 confidence with the industry that we can provide  
8 the accurate data and models that are necessary.

9           So it kind of ties in to what Rick  
10 said this morning. There was a lot of model  
11 validation. It's still going on. We still don't  
12 have a perfect system there by any means. But I  
13 just wanted to highlight the effort that's gone  
14 on behind that, because I think that that does  
15 tie in to lots of the topics that this FACA could  
16 address. Thanks.

17           MEMBER KELLY: Good morning. Ed  
18 Kelly, Maritime Association of the Ports of New  
19 York and New Jersey. The disaster response was  
20 quite interesting, and this is the first port  
21 I've ever come across where there seems to be an  
22 almost aggressive or intentional exclusion of the

1 actual private industries from this whole thing.

2 That's, quite frankly, amazing to me.

3 In our port, we grossly outnumber the public  
4 people with local expertise, et cetera. But  
5 that's not an HSRP problem, that's something to  
6 be addressed here locally.

7 What did drive is that once again, it  
8 came to the forefront, as experienced with  
9 everybody that's had a disaster, that the most  
10 critical component of preparation, response, and  
11 recovery are NOAA services and products. And  
12 we've heard that consistently every place we've  
13 been.

14 And I think we have to find ways to  
15 better engage for NOAA to probably, especially  
16 down here, engage with private organizations.  
17 We've seen all these cruise ships and headquarter  
18 operations with big ships, big concerns, massive  
19 economic impact with people, airports, hotels,  
20 provisions, etcetera, etcetera. And deep  
21 pockets, quite frankly, that could probably help  
22 to make this a much better response capability.

1 And I think that's something we need to look at.

2 One other thing that we heard here  
3 again, as we've heard in quite a few other  
4 locations, is running aground in the channel. We  
5 all kind of chuckle, we all say, yeah, that's an  
6 issue. We all kind of go, well, we're a little  
7 bit this and the Corps is a little bit that. And  
8 quite frankly, I think it's time we really found  
9 a way to address that.

10 The whole concept of secondary  
11 channels, recreational boating, and reliability  
12 of charts and data is beyond just anecdotal at  
13 this point.

14 We've heard it in Charleston, we've  
15 heard it every place we go, and every place we  
16 go, we've heard about the expansion of  
17 recreational boating and the fact that those  
18 projects, for whatever reason, either with the  
19 Corps, NOAA, whatever, just never quite make it  
20 to where we're really going to address that, and  
21 I think that's a situation that has to be  
22 addressed and resolved.

1                   MEMBER RASSELLO: Good morning.  
2           Captain Rassello, Nautical Director, Carnival  
3           Cruise Line. What I hear around the room is a  
4           common denominator, which is better  
5           communication, better stakeholder engagement  
6           among the relevant agencies and private sectors  
7           when we are talking about port recovery.

8                   Each port act and react differently,  
9           each sector act and react differently. But at  
10          the end, the ports are important for the U.S.  
11          economy. And the faster they get going, the  
12          better it is for everybody.

13                  To say faster and safe, they are not  
14          going along very well. So there should be a  
15          model structure in place to make sure that the  
16          survey is done in the due time and done well,  
17          even involving private sectors if it is  
18          necessary.

19                  What we learn? We learn a lot from  
20          hurricanes. Every year, every year it is coming,  
21          every year we learn. And I think what we  
22          learned, especially in Florida last year, is

1 better stakeholder engagement is necessary to  
2 planning.

3 And this is a very cost-effective  
4 effort, I think. It's not going to cost a lot to  
5 sit down and discuss and plan for what will be  
6 before to prepare and after to respond to open  
7 the port. And that's all I have to say. Thank  
8 you.

9 MEMBER PAGE: Ed Page from the Marine  
10 Exchange of Alaska. Now my microphone's on. I  
11 guess I learned that I'm sure glad I live in  
12 Alaska and don't have all these hurricanes.  
13 We're in a nice, safe, quiet place up there.

14 But I'm really still learning as far  
15 as, even though I started my maritime career 50  
16 years ago, and NOAA's been part of that, I've  
17 always had a respect for NOAA and worked closely  
18 with NOAA all those years.

19 I guess I never had appreciation until  
20 I've been down here as far as the portfolio and  
21 impacts and this term of blue economy and then  
22 keeping ports open in a hurricane or whatever.

1 So I've really been impressed as far as all the  
2 agencies get weighed in on that one.

3 But certainly NOAA was critical, that  
4 if NOAA didn't fulfill their function, and the  
5 other agencies, the Coast Guard, as many  
6 services, capable as they have, they don't have  
7 that capability and what have you.

8 So I think that you look around, and  
9 that's my background largely is Coast Guard, and  
10 so when you look around, you realize the impact  
11 of NOAA and look at the mission: science,  
12 service, and stewardship. And I'm just really  
13 getting an education of what your extensive  
14 portfolio is and trying to figure out where can,  
15 many of us are users of NOAA services, and how  
16 can we help identify areas that NOAA can weigh in  
17 and even further enhance their role or their  
18 mission, if you will, and also get the support  
19 they need from the administration and others to  
20 continue to do what they're doing.

21 So I guess what I've really learned  
22 over yesterday when I watched all those speakers

1 talk about how everybody addressed these  
2 hurricanes and got this port running again, as I  
3 walked last night, again, looked at the port and  
4 how relatively small it is, but how impactful it  
5 is and how impactful NOAA is, that's what I'm  
6 really kind of appreciating from yesterday, and  
7 the last couple of days for that matter, is  
8 NOAA's role, and then trying to figure out what  
9 our role in HSRP to help NOAA succeed.

10 MEMBER MCINTYRE: Anne McIntyre,  
11 Columbia River Pilots. Yesterday, I thought we  
12 heard a lot of interesting information about  
13 again, disaster planning and also disaster  
14 response.

15 And what I took out of it is that you  
16 know, NOAA plays an important role in supporting  
17 the mission, but much of what I heard wasn't  
18 necessarily I think related to NOAA's primary  
19 mission, and I think that it's important as HSRP  
20 for us to focus on how NOAA can help in those  
21 efforts.

22 And so it seemed to me that the two

1 important parts that I took away from that was  
2 timely surveys and perhaps there might be an  
3 opportunity to leverage some private assets to be  
4 able to respond to that more quickly.

5 And that the aerial mapping or, kind  
6 of, post-hurricane analysis of what the situation  
7 was on the ground was important. But I think  
8 more so than any of that is that it seems like  
9 those activities add to the pile of what NOAA has  
10 to respond to, and I think when we do the letter,  
11 as far as NOAA supporting FEMA's mission, or NOAA  
12 supporting the Coast Guard's mission, that it is  
13 important for us to make sure that NOAA is  
14 properly compensated for those activities, and  
15 that our core mission isn't impacted negatively  
16 by the response missions and the support mission.

17 I was also excited to hear that  
18 Secretary Ross had mentioned the precision  
19 navigation, and I think that it's important that  
20 we support that and mention that in our letter.  
21 And then again, I was just interested to hear  
22 more about the blue economy.

1                   And I think as we move forward to  
2                   planning the Juneau meeting, it's easy really to  
3                   get focused on regional needs and what's  
4                   happening regionally, and that's a big part of  
5                   why we go to all these different ports. But I  
6                   don't think we should lose sight of kind of the  
7                   big issues that provide continuity between what  
8                   we do.

9                   MEMBER GEE: Lindsey Gee, Ocean  
10                  Exploration Trust. I think Anne might have read  
11                  some of my notes. I think from the panel  
12                  yesterday, I was very impressed, as always, in  
13                  any disaster, and having been involved in some of  
14                  those elsewhere, it does end up on the people.  
15                  And I think they did an impressive job.

16                  But it does also expose, I think, some  
17                  of the areas where you can always do better.  
18                  We've discussed about the coordination and the  
19                  way with the Corps of Engineers and NOAA and the  
20                  activities, and I think that's essential we're  
21                  addressing that elsewhere, we've expressed that.  
22                  But I think in a disaster, it kind of highlights

1 it more and it puts it under pressure.

2 So I didn't get the feeling that --  
3 and then there was the comment from the pilot,  
4 and I agree, and I said it yesterday, I think the  
5 private resources could be -- it appeared to be  
6 used better. I'm not quite sure why there was  
7 the request from the pilots to say they need to  
8 fit their boats out. That's a response from his  
9 perspective. I don't necessarily agree with  
10 that, but having more assets would be the thing.

11 But one of the concerns I had, and we  
12 didn't have the chance to have the discussion,  
13 was how that's coordinated and who really  
14 coordinates it? And it seems that with the  
15 airborne assets and the remote sensing that was  
16 done is fantastic. You applied a particular use  
17 of normally for coastal, the shoreline mapping,  
18 to a specific different task.

19 Well, you know, in opening a port,  
20 someone's got to take charge of that, I think,  
21 and it seems like NOAA has the expertise to work  
22 for whether it's -- I didn't get the feeling of

1       how that was being coordinated, and I think as I  
2       say, in a disaster, people do their best, and  
3       they do a great job, and the job gets done.

4               But the communications and how it  
5       could be done better I think would be if someone  
6       was responsible working directly for the Captain  
7       of the Port. And I think that's where NOAA could  
8       play a really great role to coordinate that and  
9       bring the assets in.

10              One of the other things is like, okay,  
11       because I think from our role in that, I would  
12       support something like that, and I think it goes,  
13       and then they can coordinate use of private  
14       assets, Corps of Engineers, whatever it is here  
15       in your own resources. But of course, this needs  
16       funding. And so I would also say that I wouldn't  
17       want to see -- that should come from an area with  
18       disaster coordination, if that's FEMA or  
19       whatever.

20              So I would support NOAA looking to do  
21       that, because I would hate to see money that's  
22       used for general, all the other priorities of

1 operational mapping, to be taken away, and those  
2 priorities lost because of the mapping. So yeah,  
3 I think NOAA plays a key role.

4 We saw that, I think, but it could --  
5 the coordination and the communication could be  
6 much better done with the goal of getting those  
7 ports opened as quickly as -- and that's one of  
8 the things that I think was evident, that people  
9 kind of think, well, yeah, we can get the port  
10 opened quick, and let's do a survey, you know,  
11 while it's like they need to know how long that  
12 takes.

13 And it's like, in a way, the fact that  
14 the port didn't have any major obstructions, and  
15 it probably worked against now some of -- it's  
16 probably providing some of the criticism, right?  
17 That whether there's something there or not, you  
18 still have to clear it. And so if there was  
19 something there, maybe the criticism would be  
20 less.

21 But I think that in the timing, it's  
22 -- if there's nothing there, you still have to

1 clear it. So I think that certainly I would  
2 support NOAA being a real coordinator in that and  
3 taking a role that would -- but it needs funding,  
4 so how that is pursued. Thank you.

5 MEMBER ATKINSON: Thank you. My brain  
6 keeps going back to seeing a 1,000-foot ship crab  
7 its way across a current and try and get into a  
8 rocky channel. So it kind of feeds off what  
9 Julie mentioned.

10 And talking to people, and actually  
11 the reason I wasn't in the room this morning is I  
12 was talking to Tony Reynes about the needs for  
13 observations in the Gulf Stream off here. So  
14 there may be an emerging topic just about how  
15 PORTS-type systems are going to be asked to  
16 provide more information like they are off here.

17 And we were talking about buoys in the  
18 Gulf Stream and things. So this may be occurring  
19 in every port in one way or another off Long  
20 Beach and what's going on there with the swell  
21 conditions and here with the Gulf Stream and  
22 coastal currents and up off the other ports in

1 the U.S. So we may want to look at just what  
2 those requirements are going to be, and a lot of  
3 them aren't going to be cheap solutions.

4 So I'd just like to see us go down  
5 that path a little bit more, and I think we can  
6 quite easily. Oh, and we have a great panel  
7 coming up after the break, so I want you all to  
8 be here, and you'll hear more about some of these  
9 requirements.

10 MEMBER MAUNE: I'm Dave Maune from  
11 Dewberry Engineers. You may not know that  
12 Dewberry is a major FEMA contractor for disaster  
13 response in three primary areas. Individual  
14 assistance. How do we get out there to do damage  
15 assessments on individuals' homes to help  
16 homeowners get insurance claims and get  
17 assistance?

18 And after Hurricane Katrina in 2005,  
19 we deployed 3,000 building inspectors from a firm  
20 that only has 2,000 employees. So that was kind  
21 of interesting, because we have on-call building  
22 inspectors with computers and stuff trained to go

1 out and do that sort of thing. But it took time  
2 to do that.

3 We have engineers that specialize in  
4 public assistance to help get water supply  
5 systems and things back online that were knocked  
6 out, and we specialize in debris removal by  
7 estimating how much debris needs to be removed,  
8 because these local communities have to get firms  
9 under contract, and they want to know how much  
10 debris is it that we're supposed to remove. And  
11 that is a major cost of disaster response.

12 Sean may be the only person that ever  
13 heard of Hurricane Pam. Does that mean anything  
14 to you? Hurricane Pam? Has anybody else heard  
15 of Hurricane Pam? I doubt it. That was in 2004,  
16 FEMA had an exercise on Hurricane Pam. It was a  
17 theoretical hurricane that might exist if a Level  
18 5 hurricane were to hit New Orleans.

19 And it happened a year later, almost  
20 a year to the date, from when that exercise was  
21 conducted. And because FEMA had done that  
22 exercise, they were better prepared than they

1 otherwise would have had, yet they fell pretty  
2 flat. When people look back at it, they still  
3 consider it a disaster that FEMA didn't do their  
4 job very well.

5 And so what happened between 2005 and  
6 now is that I know in the case of individual  
7 assistance and damage assessment, we are now  
8 using more remote sensing techniques, and we're  
9 using some of the products that Mike Aslaksen and  
10 Juliana Blackwell produce to help us in  
11 expediting those damage assessments.

12 If you notice, after a hurricane hits,  
13 it will not be very long before somebody will  
14 say, this hurricane did so many billion dollars'  
15 worth of damage. Where does that number come  
16 from? It comes from some analyst who analyzed  
17 remote sensing data to try to determine how many  
18 buildings were damaged, how badly were they  
19 damaged, what's the value of those buildings in  
20 the damage zone, and having mathematical models  
21 in place so that the President and others can get  
22 some idea of how much work it will take to

1 recover from this disaster.

2           So I really appreciated all these  
3 people talking today. Whatever problems we had  
4 this past year, they were probably less than the  
5 problems we had in prior years because each one  
6 of these disasters gives us lessons learned, and  
7 then as we go through exercises, we try to fix  
8 the problems that we had previously so that they  
9 don't recur in the future. That's the common  
10 theme in all these exercises.

11           So when the gentleman from Carnival  
12 Lines yesterday recommended that there be  
13 exercises, I was getting the impression that he  
14 was not a part of those kinds of exercises in the  
15 past and needed to be, and that's certainly a  
16 good suggestion that came to me out of this whole  
17 thing. Thank you.

18           MR. EDWING: Rich Edwing, Director of  
19 CO-OPS. So, two comments. With respect to the  
20 panel yesterday, I think people have covered  
21 pretty much all the observations from that. But  
22 the thing I heard yesterday, and I've heard

1 before, is always the most cogent statement I  
2 hear, is if you're trying to figure out who to  
3 call and how to get a hold of them and what you  
4 need during the event, it's way too late.

5 You have to have that all figured out  
6 in advance. And perhaps even more importantly,  
7 have your relationship established with that  
8 person. That's where the drills come in like  
9 Gary's talked about just done in North Carolina  
10 and being conducted in other places. So it's  
11 always, to me, the most powerful statement I hear  
12 people make in terms of being prepared.

13 The other area is more broad. I mean,  
14 I'll pull a thread that Juliana and Larry talked  
15 about, and that's the models. I am really  
16 excited to hear about how much models have become  
17 a part of the discussion at the panel and in  
18 other places.

19 We first started doing modeling in NOS  
20 in 2003 when we had some models transferred to us  
21 from the Great Lakes Environmental Research  
22 Laboratory and Ohio State University for the

1 Great Lakes. There's been a number of paradigm  
2 shifts in the modeling program as we've developed  
3 it, but it's really been only the last few years  
4 where I've heard people actually using the models  
5 and wanting more models and better models.

6 The first models were not very good.  
7 People tried them, and they walked away from  
8 them, because they weren't very good,  
9 understandably so. But we are now at the point  
10 where they are good, and these are really the  
11 future. We're always going to need observations,  
12 but it's really going to be the models that are  
13 the main delivery system, I think, as we move  
14 forward. So I'm really excited about that.

15 Thank you.

16 DR. CALLENDER: Russell Callender,  
17 National Ocean Service. Well, since I'm the guy  
18 that's probably the closest to the Admiral,  
19 Admiral Gallaudet, I guess what struck me is he  
20 laid out very briefly and not in a lot of detail  
21 this idea about the blue economy, and I think  
22 there's three areas that he has been talking

1 about that are directly relevant to this panel,  
2 and also directly relevant to the conversations  
3 we heard yesterday.

4 And that's absolutely the value of  
5 maritime commerce. And we all clearly get that.  
6 That's kind of the easy one for this panel.  
7 Secondly, recreation and tourism. You know, Ed,  
8 you were talking about the connections to the  
9 recreational boating community and the challenges  
10 that they have. And so there was a lot of  
11 discussion on the first day about that.

12 And finally, the preparedness and the  
13 risk reduction priority. And clearly, we heard a  
14 lot about that yesterday. And one of the things  
15 that struck me is that NOAA is an enabler of many  
16 different agencies, the Army Corps, Coast Guard,  
17 FEMA, enabler of ports, enabler and supporter of  
18 the private sector. So I think that was -- we  
19 don't own it, but we enable a lot of that work.

20 I thought what we heard a lot of  
21 tidbits, too, yesterday of how we, the NOAA we,  
22 can do better in terms of our products and

1 services and our engagement with the community,  
2 ideas around the value of the NRTs or bringing  
3 these MIST systems in and training other folks to  
4 use them. And I think pulling that thread from  
5 this panel I think would be a pretty good thing  
6 to do.

7 And finally, just a plug, if you will.  
8 We've got a training facility, the Disaster  
9 Response Center, in Mobile that really is set up  
10 to train groups, not just NOAA but inter-agency  
11 groups and also do exercises.

12 So, training is great, exercises are  
13 better because then you can really see what you  
14 need to train on again. So I think some  
15 suggestions and thought about the value of  
16 training and exercises might give us some  
17 synergies with this DRC down in Mobile. Thank  
18 you.

19 RDML SMITH: Thank you to all of you.  
20 I took a lot of notes, both today and yesterday  
21 on a lot of things that I want to follow up on to  
22 try to figure out how to take the germ of a good

1 idea and turn it into reality. And I  
2 particularly have a lot of things to talk to  
3 Captain Crocker about about NRT, some really  
4 great NRT lessons learned, some of which we  
5 captured before, and some of which came out here  
6 as a result of both your observations and the  
7 panelists' observations.

8 So I'm excited about that. I'm  
9 looking at my watch thinking about how soon June  
10 1st is, as far as our ability to put some of  
11 these improvements in place before the next  
12 hurricane season. But we'll get at least the  
13 skeleton of it in place.

14 I'm also a big fan of exercises. I  
15 think particularly sort of when we can even just  
16 table-top it, don't even worry about the  
17 equipment or anything, how would this really  
18 work, and how do you think about this and what  
19 would we do in this type of approach, and what  
20 could we bring to the table if we need more  
21 people or what really is the timeline for getting  
22 these things done. I think we could do a lot of

1 value. I hadn't even thought of the DRC. That's  
2 a really great idea.

3 The running aground in the channel,  
4 that very problem is really what inspired a lot  
5 of the National Charting Plan changes for larger-  
6 scale charts.

7 It's not that we don't know that that  
8 shoal is there. In a lot of cases, we have the  
9 survey. It's just that on the paper chart, it's  
10 two pixels wide, right? We just simply don't  
11 have the room to show what we know. And with  
12 larger-scale charts and more sort of modern ways  
13 that we can disseminate those quickly, a lot of  
14 those limitations of the paper chart system have  
15 now gone away. But we haven't fully internalized  
16 all of the new value that we can recognize from  
17 that.

18 We're pushing ahead on that as fast as  
19 we can, some of which is just getting our act  
20 together to know exactly what needs to be done,  
21 but we certainly expect to scale it with contract  
22 aggressively as resources are available and we

1 can industrialize some of these processes of  
2 improving these charts.

3           Again, I don't want to repeat  
4 everything that you all said, but thank you very  
5 much.

6           CHAIR MILLER: Thank you, everyone.  
7 Just I want to highlight one or two things that I  
8 didn't hear. I think it was the Coast Guard  
9 captain who said the Nav Managers was the most  
10 valuable player in the whole thing.

11           And we have heard that again and  
12 again. And the role of the Navigation Managers,  
13 I don't know how you estimate value for dollar,  
14 but every time we've heard about a disaster, the  
15 Nav Managers were really a key player in all of  
16 this disaster response.

17           The other thing I'd like to say is the  
18 LA-Long Beach model, where a major corporation  
19 has taken lead in a lot of the precision nav.  
20 That's a model that was developed, and as  
21 everyone points out, every port is different.  
22 But if we've got working models like the oil

1 company's in LA-Long Beach, how can we help to  
2 kind of move that model to some place like Miami  
3 where the cruise ships are the -- and very  
4 honestly, those companies have very deep pockets,  
5 and what to NOAA might be an insurmountable money  
6 problem to those companies, it's chump change,  
7 really.

8 I mean, yeah. Yeah.

9 MEMBER RASSELLO: Hi, this is Sal  
10 again. The port itself should have a fund  
11 dedicated to post-recovery. Why not? They are  
12 absent, I am sorry to say.

13 CHAIR MILLER: All right, I think NOAA  
14 can help and the NAV managers can help in saying  
15 we have a model here in LA-Long Beach. Let's see  
16 how that model could be modified to help the Port  
17 of Miami. Okay, we're behind time, as usual.  
18 Admiral Smith, do you have anything else you'd  
19 like to add at this point?

20 RDML SMITH: I do not.

21 CHAIR MILLER: Okay. I will turn it  
22 over to Ed Saade and Lindsay Gee who are co-

1 chairs of our Technology Working Group, and they  
2 will report out on their progress so far and  
3 future plans.

4 VICE CHAIR SAADE: Okay, thanks. This  
5 is Ed. And Lindsay might as well get online.

6 MEMBER GEE: And this is Lindsay.

7 VICE CHAIR SAADE: Okay. So we set  
8 this up as a review of what's been going on in  
9 the last six months, and also to kind of  
10 stimulate a little bit of conversation on where  
11 we should go in the future.

12 So, we're going to review what's been  
13 going on since New Hampshire, technology related  
14 and input on issue papers, a couple of topics for  
15 the next five months. We'll start the discussion  
16 with the potential collaboration between  
17 ourselves and the Science Advisory Board as was  
18 suggested in the letter that was sent around.

19 And, again, any ideas and topics and comments for  
20 the future, or pet projects, you name it. So,  
21 why don't you take this slide, Lindsay?

22 MEMBER GEE: So this is really just a

1 review of what we did during that time. And  
2 there were three meetings that are down in the  
3 bottom, but we also got updates from OCS about  
4 the Autonomous Strategy that E.J. presented to us  
5 and the National Charting Plan.

6 I think we'd ask Admiral Smith if he's  
7 got any comments just now about any current  
8 updates just on the Autonomous Strategy, how  
9 you're progressing with that?

10 RDML SMITH: We are moving through the  
11 sort of steps that we outlined in there. First,  
12 one of which for this year was the conversion of  
13 some of our existing platforms to optionally  
14 manned so that we can help industry provide a use  
15 case for what collision avoidance really looks  
16 like in a hydrographic context and what sort of  
17 feedback mechanisms we need between the mission  
18 execution and the operation of the vessel.

19 We don't have any doubts about the  
20 ability of little yellow boats to drive  
21 themselves around on autopilot, right? Most of  
22 them don't have a convincing way of not hurting

1 themselves while they're out there or running  
2 into things. So we need to help mature that.

3 And I'm not aware really of any that  
4 have a mature way of actually doing hydrography,  
5 right? If you were to give a mission to a launch  
6 crew to go out for the day, go investigate these  
7 things, if you find them, get the lease depth and  
8 move on. You can't give that sort of instruction  
9 to an unmanned vessel. You have to give it a  
10 bunch of lines and then you monitor it remotely.

11 So we're trying to get to the point  
12 where we actually can recognize real value in  
13 increasing the number of platforms and reducing  
14 the number of people, and it's going to take a  
15 while.

16 I did go both to Oceanology, among  
17 others, and to the Canadian Hydrographic  
18 Conference. And, as usual, this is a very fast-  
19 moving field, and there were some significant new  
20 developments and some very interesting new hull  
21 forms for unmanned vessels that are less adapted  
22 from what a survey launch used to look like with

1 people in it to something thought through from  
2 the beginning to be an unmanned system.

3 And those are pretty exciting  
4 developments that I would like to figure out a  
5 way to keep our program nimble enough to be able  
6 to engage with the cutting edge as it evolves.  
7 I'm really leery about the sort of usual big  
8 government impulse to create a program of record,  
9 you know, that has requirements that take three  
10 years to develop, a contracting process that  
11 takes three years to get through, and then, you  
12 know, a delivery cycle that takes three years to  
13 get through. And then you train and get people  
14 on the water with it, and pretty soon, a decade  
15 has gone by and we don't want what we just now  
16 have delivered.

17 We need to be able to get from what's  
18 available cutting edge to getting it in the water  
19 and getting it in use within a year. And that's  
20 not the way that the government contracting is  
21 normally set up, and certainly not the way DoD  
22 contracting is set up. And so we're really

1       trying to push the boundaries and figure out how  
2       to retain that nimbleness, with the goal of  
3       helping to mature this technology so that it gets  
4       to the point where we can take it to scale.

5                       So that's the heart of our strategy  
6       with the hydrographic program. I think many  
7       people overestimate how mature this technology is  
8       for this type of field. And if you all, like me,  
9       see the technological work that needs to be done,  
10      that would be helpful to help keep reflecting  
11      both the potential -- we're very optimistic about  
12      this -- but also a certain sobriety about where  
13      we are so that it doesn't just look like we're  
14      behind.

15                      You know, if you guys would just move  
16      forward, you'd get rid of all your people and  
17      just use these robots instead. That's not where  
18      we are. And it's sometimes unhelpful to hear  
19      that description of us.

20                      I'd be happy to take any questions or  
21      --

22                      MEMBER GEE: I would comment, I agree.

1 I think from a technology point of view is what  
2 the panel -- you're right, t's an evolving  
3 technology. These are not products yet. They're  
4 projects as we move forward. And as an example  
5 of the contribution of industry, NOAA's work  
6 already to industry, as I think you're aware,  
7 Damian Manda, who was a CCOM master's student, we  
8 see his work of the auto-following and planning  
9 of surveys is already in use in products and  
10 around the world.

11 So I think those little steps that  
12 NOAA does and the support of all those little  
13 things that get done have a big impact on  
14 industry, and we would certainly encourage. And,  
15 yes, you're not buying a ship that's a mature  
16 technology. This is definitely something that's  
17 evolving, and you need to have, I think, that  
18 acquisition process in place for OCS to be able  
19 to continue to do that.

20 VICE CHAIR SAADE: I was just going to  
21 comment on what you said, Admiral, that within  
22 our company I'm a big advocate of "don't buy

1 anything," because it's changing so rapidly that  
2 anything you buy is going to be almost obsolete  
3 within a year, and certainly within two years.  
4 And that's a really interesting point.

5 And I'm going to take it back, because  
6 it's a big battle within our own company about  
7 people wanting to jump in all the way and start  
8 to put the fleet out there, and then all of a  
9 sudden there's a much better mousetrap coming  
10 around the corner and much more efficient.

11 RDML SMITH: Yeah, I think that's a  
12 great point. And if I were running a private  
13 business, I think I would probably not buy  
14 anything. But I think there is -- if nobody buys  
15 anything, though, then nobody's going to develop  
16 anything, right? And so I think there is a role  
17 for government here to periodically buy things to  
18 keep the pump primed, even if we don't really  
19 think that it's going to have a ten-year  
20 deployment cycle before it reaches technological  
21 obsolescence.

22 That buying things, using them,

1 getting those lessons learned, honing the  
2 requirements, and develop, you know, providing  
3 the use cases for the next generation of  
4 technological investment is still a role to do.  
5 And it make look silly and wasteful to just buy a  
6 little bit now and again, but actually I think  
7 it's really strategic and smart and a way to help  
8 mature the industry.

9           And, to Lindsay's point as well, I  
10 think that's a really great point on the  
11 investment and the Damian Manda technology. The  
12 other thing that we're trying to do  
13 simultaneously is bring our people along. And  
14 the training program that USM runs with some  
15 investment from us annually on just bringing  
16 another dozen people or so into a higher level of  
17 expertise with operation and sort of  
18 understanding of unmanned systems will give us  
19 the foundation that we need once we start to be  
20 able to take these things to scale.

21           MEMBER GEE: Thanks, Admiral. Yeah,  
22 just as I'm aware -- I'd love to discuss this all

1 day, but I'm aware of the panel that's following.  
2 I'd like to move this on. Can you just move to  
3 the next slide, please? Thanks.

4 Yeah, I was going to go through the  
5 individual ones that are on the next slide. So  
6 we heard -- Mike gave us a briefing on part of  
7 the technology panel. It was a precursor to what  
8 we've heard here, so I don't think we need to  
9 address that again. It was certainly the  
10 application of the remote sensing technology  
11 normal for one use was provided for the disaster  
12 relief, which we've heard. So, next one, thanks.

13 I do just briefly ask Rick if he could  
14 just give us an update at the stage. We had, for  
15 the bathymetric model, E.J. and Patrick had given  
16 us a presentation, but if Rick could also just  
17 give a brief update, it'd be great.

18 CAPT BRENNAN: So we started this.  
19 The Admiral talked about doing the chart re-  
20 scheming. We're now calling this the National  
21 Bathymetric Source. We've been doing this since  
22 Admiral Smith did his thesis. And no name ever

1       stuck to the project.  So, you know, we have a  
2       knack for coming up with creative acronyms, so we  
3       said, well, let's come up with this, and when we  
4       called it the BOMB, everybody freaked out about  
5       that.  So it spurred us to a new name, which was  
6       the National Bathymetric Source.

7                 So that's what we're calling it today.  
8       But the idea is that, in order to build out those  
9       new charts, you can't just draw a box around the  
10       existing data and expect it to miraculously  
11       become higher resolution.  You need to have the  
12       source data from whence it was extracted.  So  
13       that's really what this is about, is doing that.

14                So we're building this out mirrored by  
15       the Mapping and Charting Division's production  
16       branches.  So we're currently building out  
17       Production Branch C, which is New England, and it  
18       goes from around Sandy Hook, New Jersey, to the  
19       Canadian border.

20                And within that area, there is a  
21       prototype test area which are those four squares  
22       there, those chart cells, those proposed chart

1 cells that are right around the Port of New York  
2 that are being built out. So that's where the  
3 team is currently focusing their efforts on.

4 If we do this correctly, we will  
5 include in the National Bathymetric Source  
6 basically every stitch of bathymetry that is  
7 currently housed at NCEI, which includes all of  
8 our own bathymetry that we've acquired over the  
9 last 200 years, as well as all the crowdsourced  
10 data and all of the other external-source data  
11 that's been added there.

12 So that's currently what we're working  
13 at doing. In addition to that, the intent is  
14 that's also where all the Army Corps data would  
15 go. So, currently, all Army Corps data goes  
16 directly to the chart, and with varying degrees  
17 of supersession applied to that, because it's not  
18 done in the context of the other bathymetry  
19 that's known in the area.

20 So what we're hoping is that this will  
21 provide a more methodical and algorithmic way of  
22 taking the Corps of Engineers' data, applying it

1 in, and then being able to provide better  
2 products than what there are currently being  
3 offered right now to the mariner and doing it in  
4 a quick and effective fashion.

5           So this is what we're doing currently.  
6 We have provided prototype products to MCD. And  
7 for anybody that is able to speak in the S57  
8 language, that's basically soundings and depth  
9 contours that we've applied to that. So those  
10 are really the two primary products that will  
11 come out of this database.

12           The intent is that it be fully  
13 automated and that we would be able to just have  
14 a weekly production cycle that, since the last  
15 weeks' production cycle, we would add new  
16 bathymetry in, new surveys that have come in.  
17 That would get applied to the database. And at  
18 some particular point in the week in that  
19 production cycle, all new soundings and contours  
20 would get created, sent to the NIS, the  
21 Navigational Information System, or the Nautical  
22 Information System, that's at MCD, and then that

1 would be applied to the chart. So that's the  
2 goal that we're shooting for.

3 We currently hope to have this one  
4 built out within, nominally, 18 months, but I  
5 think we're also hoping that as we build this out  
6 we're building automated tools to load, populate,  
7 do supersession, and validate the database  
8 against the current chart so that we can build  
9 speed with that. And there's hope that we might  
10 be able to start building out a production branch  
11 every six to eight months.

12 So this is hopefully maybe a five-to  
13 six-year project, not a ten-to-20-year project.  
14 So I'd like to see this in my lifetime. Maybe  
15 even before I retire. So that would be great.

16 MEMBER GEE: Yeah, thanks, Rick. And  
17 for those, I guess, in the panel, why do we  
18 choose this? This is kind of key to a lot of  
19 things we've discussed. And I'm really pleased,  
20 and I hope it has the funding to go forward. It  
21 was a really important project. We've got a  
22 paper coming out about the infrastructure.

1                   This is part of a key part of the  
2                   infrastructure, specifically for the charting.  
3                   We can't move ahead with things like the precise  
4                   navigation. Sal hasn't mentioned it this time,  
5                   but I'll say it for him. It's like, you've got  
6                   to convert to meters in the chart, so you can't  
7                   do it without this kind of technology.

8                   It also opens it up for the further  
9                   blue economy to make the data more useful for  
10                  others. So it's kind of the boring  
11                  infrastructure -- well, not boring for some, but  
12                  it's that infrastructure stuff that just has to  
13                  be done, but it's not visible. So it is really  
14                  key, so we're really pleased to see that morning  
15                  forward. Yeah, Joyce.

16                  CHAIR MILLER: Having been struggling  
17                  to make a coherent map out of Honolulu Harbor,  
18                  where there are thousands of ship lines, I hope  
19                  that NOAA is making every effort to build upon  
20                  previous successes like, for instance, the  
21                  generic sensor format, to make this process less  
22                  painful, because I can tell you, when you've got

1 thousands of ship lines, figuring out which one  
2 is best is not an easy job.

3 CAPT BRENNAN: I don't think I ever  
4 said it was going to be easy. So, to Lindsay's  
5 point, I would like to say, I mean, we talked  
6 specifically about the charting value of this. I  
7 mean, I think the other end of this is that,  
8 well, first, to get to the point that we have  
9 consistent contours, and I think the Admiral  
10 pointed that out in some of the charts the other  
11 day, is that you'll have contours that just end  
12 at one chart boundary and then are basically not  
13 continued on the next chart.

14 So, in order to be able to provide  
15 that, this is critical. In order to be able to  
16 change tidal epochs, right, we have to have this  
17 to apply that to the soundings. To be able to go  
18 to meters, we have to have this. To be able to  
19 provide S102 products, gridded bathymetry  
20 products, you have to have this. So, to get to  
21 high resolution products, to get to products in  
22 the Intercostal Waterway, you have to have this.

1           So, I mean, this is really that  
2 critical piece of foundation that you have to  
3 have in order to move forward with all that.  
4 Once you have this, the other thing that's  
5 valuable is that then you can start supporting  
6 things like tsunami inundation, storm surge  
7 models.

8           This is the basic foundation for all  
9 oceanographic models, which what we're seeing,  
10 and I think Larry was saying, for the Arctic, you  
11 know, off of Barrow, this is the one thing for  
12 their ice recession models that they have, is  
13 that they don't have bathymetry.

14           So being able to help provide that in  
15 a way to the community, and nationwide, we feel  
16 like that's going to be a tremendous value. Navy  
17 as well, they've said that their bathymetry,  
18 particularly here in NORTHCOM, is limited.

19           So, to the extent that we can start to  
20 do that, because basically what they do every  
21 year is just go scrape NCEI for all the stuff  
22 within our EEZ. So, having it in a way that's,

1 for them, easily digestible, they're very  
2 interested in it as well.

3 MEMBER GEE: Thanks, Rick. So then,  
4 yeah, the next brief we had was from Ed talking  
5 about the wind farm activity off the East Coast  
6 and the use of NOAA data and products out there.  
7 Ed, do you want to brief?

8 VICE CHAIR SAADE: I really  
9 appreciated the opportunity to present this. The  
10 only thing that I would add is it's even more  
11 busier than when I presented it a month ago. So  
12 if there's truly any kind of a boom activity  
13 offshore in the United States right now, it's  
14 offshore wind farm from an industry point of  
15 view. And it continues to accelerate.

16 And, again, everything does really  
17 truly start with a variety of NOAA data products,  
18 whether it's sea floor maps and soundings to any  
19 types of things that particularly have to do with  
20 weather and wind, of course, and all those types  
21 of ports capabilities. Yeah?

22 MEMBER KELLY: Ed Kelly.

1 Surprisingly, there are not just wind farm plans  
2 out in the water. There's ships, commerce,  
3 economy, safety, security issues. We've seen  
4 BOEM actually trying to lease the seabed  
5 underneath an active federal ordinance explosives  
6 testing area, which, you know, the people that  
7 were planning to lease that had no clue was  
8 there.

9 We've been meeting with BOEM and other  
10 entities, and we've got a whole kind of laundry  
11 list of things that have to be taken into  
12 consideration from maritime commerce  
13 perspectives. And I'll send a copy of that over  
14 to you just so you can kind of incorporate that  
15 into the plan. A lot of people are saying, "oh,  
16 isn't this great, it's wide open," and not  
17 really. It's been in use for a couple of hundred  
18 years.

19 VICE CHAIR SAADE: So, for some  
20 contractors, when you go to an area where there  
21 is a lot of explosives, that's a contract of  
22 opportunity to go help mitigate it. So, it's

1       okay.

2                       (Laughter.)

3                       MEMBER KELLY: Well, no, they were  
4 looking at leasing space under mandated  
5 international traffic separation schemes. And  
6 you know, it was just -- ignorance is a strong  
7 word, but it was a lack of awareness of what's  
8 out there, because you know, our commerce lanes  
9 and our shipping lanes, we don't paint double-  
10 yellow lines, we don't put out stop lights, so  
11 it's not as easily recognizable, but it's out  
12 there. So I'll pass that over to you just so you  
13 can kind of incorporate. There's room for  
14 everybody, don't get me wrong, it's just there  
15 are certain precautions that have to be taken to  
16 avoid some what could be potentially ugly  
17 incidents out there.

18                       VICE CHAIR SAADE: Okay.

19                       CHAIR MILLER: Sorry to the Technology  
20 Working Group. We're about five minutes until  
21 break time, and all our panelists are here, some  
22 of which are under very strict time things. Can

1 I ask, we have an hour and a half for lunch, and  
2 we could certainly take a half an hour of that to  
3 continue the technology discussion, if that's  
4 okay with you. It might be from 12 to 12:30, and  
5 then we'd have lunch at --

6 VICE CHAIR SAADE: I don't know about  
7 Lindsay. I think that's fine, because we're done  
8 with the review. We want to talk about the  
9 future, which is mostly talking anyway. Right?  
10 So we don't have anything that's slide-dependent  
11 going forward.

12 MEMBER GEE: It's that request from  
13 the Science Board that probably needs some  
14 discussion, so I wouldn't want to cut that off.

15 CHAIR MILLER: I totally agree,  
16 Lindsay, I think that's important. So let's take  
17 a 15-minute break, and would everybody please be  
18 in their seats in 15 minutes. I don't mean  
19 standing, talking around. I mean in your seats.

20 (Whereupon, the above-entitled matter  
21 went off the record at 9:43 a.m. and resumed at  
22 10:00 a.m.)

1                   CHAIR MILLER: Okay. I'm really  
2 looking forward to this next panel that focuses  
3 on coastal and maritime community risk reduction.  
4 We have an impressive group of experts, and Larry  
5 will be leading it. I just wanted to say that  
6 Captain Sal Rassello had to leave for the  
7 airport, so he won't be here for this session.

8                   So the moderator is Larry Atkinson,  
9 and I'll turn it over to you. He will be doing  
10 the introductions. Larry?

11                   MEMBER ATKINSON: Okay, I just want a  
12 little primer here. Being from Norfolk, I can't  
13 resist putting up some slides of flooding, and we  
14 have a lot in common with the Southeast Florida  
15 region. I just wanted to put up the slide on the  
16 left is what flooding they get -- I shouldn't  
17 just say Miami, all over the southeast.

18                   During King Tides, the picture on the  
19 right, is from a house that I drive by every day  
20 to work, and that's 3 feet above the 100-year  
21 flood level. It's pretty amazing. Those cars  
22 are -- the contractors' trucks are parked in

1 flooded streets, raising a house up. It's kind  
2 of hard to reconcile, you're raising the house up  
3 but the street floods.

4           The next slide I just want to show --  
5 this is the sea level rise rates for the whole  
6 East Coast, from Eastport, Maine on the left to  
7 Key West on the right. And the blue line is 1-  
8 foot-per-century, approximately. And just to  
9 make the point that the whole East Coast and the  
10 Gulf Coast, of course, also, if I put it on  
11 there, would look the same or even higher rates  
12 because of higher subsidence.

13           So we're all facing the same problem.  
14 Of course, the issue with our coastline down here  
15 and up in Norfolk and a lot of the East Coast is  
16 very flat. So 1 foot of sea level rise is a big  
17 deal, and even, 2 or 3 feet is even more  
18 important.

19           This is the Key West tide gauge. Two  
20 points here, one, this just shows the  
21 extrapolation of where we think sea level rise is  
22 going. This is the kind of stuff I do, and it's

1 also, of course, done by Billie Sweet at the NOS.  
2 And there's a lot of products available, but the  
3 interesting thing is there's no long-term tide  
4 gauge around here. The oldest, I think, is back  
5 in 1994 in Virginia Key. So the only long-term  
6 tide gauges we have are at Key West and up at  
7 Jacksonville. So a plea for -- and now tide  
8 gauges are going in here, so you've got good data  
9 to work from.

10 The panel is a distinguished panel  
11 that we have today. The bios are in your packet,  
12 so I'm not going to go through those. I'm going  
13 to go ahead and start with the Honorable Kristin  
14 Jacobs from the Florida House of Representatives.  
15 Please go ahead.

16 HON. JACOBS: Well, good morning,  
17 everyone. It's really great to be here in a room  
18 full of so many smart people who know this issue  
19 inside and out. As a Florida State legislator, I  
20 often have to preface this conversation with an  
21 attempt to keep it non-partisan and talk about  
22 the science and talk about the economy. And I

1 heard a new term today, the blue economy. So I'm  
2 eager to learn more about that because I think  
3 it's an interesting way to continue to get the  
4 politics out of the science, and the pragmatic  
5 approach that Southeast Florida has taken over  
6 almost 10 years now.

7 I was a county commissioner when this  
8 process started; the compact between Miami-Dade,  
9 Broward, Palm Beach, and Monroe Counties, and  
10 it's amazing to see the resources that have been  
11 put into play in this region, primarily because  
12 we figured out how to work together and speak  
13 with one voice, which is how NOAA was able to  
14 come and help us out.

15 We couldn't have gotten where we are  
16 today if it weren't for the federal resources  
17 that were given to us, and in many ways, the  
18 state resources, even though the joke is that you  
19 can't say climate change in the State of Florida.  
20 In fact, last year, I passed a major climate  
21 change legislation that was signed into law by  
22 our governor, a Republican, voted unanimously by

1 every member of the Senate, a majority  
2 Republican; voted by all but one -- I did lose  
3 one guy on the floor of the House -- 120 members  
4 all voted for it. And that's a super-majority  
5 Republican body.

6 And so it passed; the governor signed  
7 it into law on the very day that President Trump  
8 walked away from the Paris Accord. So you can  
9 say climate change in the State of Florida, and  
10 in fact, one of the biggest issues that we have  
11 now been working on is the Florida Resilient  
12 Coastlines Program, which is a product of the  
13 governor and supported by his Department of  
14 Environmental Protection. And the head of that  
15 agency, Noah Valenstein, for a guy who just came  
16 along not too many years ago to lead this agency.  
17 I think he's been in place -- I say years, it's  
18 just been over a year -- but he has really been  
19 able to take this agency and point it in the  
20 right direction.

21 This year in the budget we were able  
22 to get \$3.6 million to bump up the coastal

1 resiliency program, and specifically to start to  
2 address the adaptation action areas, which was a  
3 legislative effort that was passed into law in  
4 2011 by the work of the four counties through the  
5 Southeast Florida Climate Compact and adopted by  
6 the state.

7           So we do say climate change, and we  
8 have been saying it for a while and putting our  
9 money where our mouth is. The adaptation action  
10 areas are -- if you've been following what's been  
11 going on in the compact communities, most notable  
12 the work done by the City of Fort Lauderdale, but  
13 the office is now working on these projects for  
14 many other areas, including St. Augustine and  
15 Escambia County are also working on adaptation  
16 action areas. So it's an important step forward.

17           This year, just a couple of weeks ago  
18 actually, the governor signed into law a bill  
19 that I had been working on as a county  
20 commissioner and then the 4 years I've been in  
21 the Florida House. So a total of 9 years working  
22 on this project. And that was to set up a --

1 basically bracket the area from the Dry Tortugas  
2 all the way to the St. Lucie Inlet as a coastal  
3 marine sanctuary-esque set-aside or conservation  
4 area, because up to now, in the last 2 years,  
5 we've lost 21 of the 35 coral reef species, and  
6 we're not sure why, what is happening.

7 In fact, one of them that died was 330  
8 years old. There were attempts to go out and  
9 harvest one of the oldest living corals before it  
10 was gone completely. Unfortunately, it died so  
11 fast that we were not even able to get samples so  
12 that we could reproduce it in a lab.

13 So we don't know exactly what's going  
14 on out there. Last year, I was successful in  
15 getting \$1 million to begin monitoring it, and  
16 then this year, as you know, member-  
17 appropriations projects have a laser, especially  
18 if you come from the side of the aisle that I do,  
19 often when we're trying to cut dollars in a  
20 budget. So I was really happy to see the  
21 governor and the head of the Department of  
22 Environmental Protection move those monitoring

1 dollars under their budget.

2           So that million dollars is now funded,  
3 and that effort will continue to go on. And as  
4 you know, the three-tier coral reef system that  
5 runs along the southeast part of our state is  
6 really important to resiliency, both to the  
7 coastal area, but also to the industry that  
8 relies on a healthy marine environment to  
9 continue going forward.

10           I know that we are going to be opening  
11 up for a lot of questions later on, and they've  
12 got a timer up here. So I don't want to go too  
13 far and get too specific on issues. So  
14 hopefully, if you have any other questions about  
15 that area, you'll be able to ask me as we move  
16 on.

17           I wanted to touch briefly on Hurricane  
18 Irma and the lessons learned in this state by a  
19 lot of folks that thought that because they are  
20 not coastal, they don't really have to worry  
21 about hurricanes. And as we saw, as basically  
22 the entire state picked up from wherever they

1 were and moved to another part of the state, it's  
2 really important to understand what your  
3 evacuation plans are and your preparedness plans  
4 are. But as many counties learned, their  
5 shelters were overwhelmed when people that they  
6 never, in a million years, expected, moved into  
7 their counties, seeking support, water, supplies,  
8 shelter.

9           And their shelters were overwhelmed,  
10 their services were overwhelmed. And we got a  
11 real clear picture of what is happening to our  
12 utilities, as utility after utility did not have  
13 the infrastructure in place to make sure that  
14 they weren't having raw sewage overflows and many  
15 other calamities.

16           You all heard, too, about our nursing  
17 homes and what happened when the power was lost.  
18 And the idea that we needed to come up with some  
19 sort of priority system for how we deal with the  
20 loss of power in this state, and the special  
21 needs populations that are in dire straits when  
22 power goes down.

1           So the Speaker of the House put  
2 together a panel on hurricane preparedness. I  
3 was fortunate to be selected to serve on that  
4 panel, and I wish I could sit up here and tell  
5 you as a member of the Florida House of  
6 Representatives that we nailed this one.

7           We had the biggest example of what  
8 could go wrong in our state, and we are now  
9 moving in a new direction. Unfortunately, there  
10 was no similar effort that was put in place by  
11 the President of the Senate. And so all of the  
12 work that the Florida House did with hours and  
13 hours and hours of public testimony and a very  
14 nice, long report with almost 200  
15 recommendations, that two bills came out of the  
16 House but never had a Senate companion. And so  
17 those issues pretty much fell flat.

18           There are some other things that were  
19 put into place that did manage to make it  
20 through, and we'll be happy to talk about those  
21 if you're interested at the end when we have some  
22 questions.

1                   And with that, I've got about 6  
2 minutes left, but I really would like to hear  
3 from you all about the issues that you want to  
4 talk about related to the state. So I'm going to  
5 stop at this point. I know that my colleagues up  
6 on the dais up here have PowerPoints that are  
7 going to be a little more time sensitive. So  
8 with that, I'm going to turn the microphone back  
9 over to our moderator.

10                   MEMBER ATKINSON: Thank you very much.  
11 We'll take that time, you get 5 minutes of your  
12 own time later to answer questions. Next is Tony  
13 Reynes from the National Weather Service, here in  
14 Miami.

15                   MR. REYNES: Thank you very much.  
16 Larry; good morning, everyone. First of all,  
17 thank you for the invitation. It's a real honor  
18 to be here talking with you guys. I represent  
19 the National Weather Service, part of NOAA, of  
20 course. One of the biggest lessons that we had  
21 in a long time was the visit of Hurricane Irma  
22 last year. So I'm going to be talking a little

1 bit about the products and information that the  
2 Weather Service not only puts out for these kinds  
3 of events and situations in general, and what  
4 kinds of things we experienced last year that we  
5 probably need to work on a little bit on.

6 One theme that I saw that is recurrent  
7 from several people is communication was kind of  
8 a big issue during Irma, and one of those  
9 communication issues was for people to actually  
10 know where to go to get the information for them  
11 to be ready, to prepare, and to make decisions,  
12 decision-making, which is a big theme in NOAA  
13 right now, especially in the Weather Service.

14 So I'm going to be -- touching some of  
15 those points in my presentation, and hopefully  
16 when we come to the question session and any of  
17 you that need specificity in terms of where to  
18 get information, reliable information during the  
19 next big weather event, I'm going to give you  
20 some pointers on where you can get that.

21 I'm going to talk a little bit very  
22 quickly about weather hazards. This is an

1 overall presentation in terms of weather  
2 preparedness and other stuff that we probably  
3 don't need to get into the details. I'm going to  
4 be skipping some of the slides. I'm going to get  
5 into straight -- the information that pertains to  
6 preparedness, to maritime operations, and to port  
7 safety.

8 We also have Mr. Dave Dellinger. He's  
9 our Port Meteorological Officer, he's sitting in  
10 the back, he also works with our office, and I  
11 think you have some quick information about where  
12 they can get port observations and data, right?

13 So the Weather Service office is open  
14 24/7, of course. We are co-located with the  
15 National Hurricane Center on the Florida  
16 International University campus. We are the ones  
17 that issue all the marine products, and of course  
18 the Special Marine Warnings that the marine  
19 community needs to get ready and to respond to  
20 any emergency.

21 We have about 122 weather offices  
22 throughout the nation, but if you notice, there's

1 a big concentration of weather services all  
2 around the coastline in the Atlantic, the Gulf  
3 Coast, and the West Coast. So those offices are  
4 the ones that have specific marine tasks and  
5 marine responsibilities.

6 It's all hands on deck every time we  
7 have a big event like Irma, for example, last  
8 year. That means that we are in lockdown, and we  
9 were in lockdown for almost 72 hours inside our  
10 office, with all the windows and doors completely  
11 locked. So those of you that have been on a  
12 lockdown situation for more than one day, you  
13 know how interesting that can get. But we need  
14 to do it; it's the only way to do it.

15 In terms of coastal responsibility, we  
16 have about 60 nautical miles out from the Gulf  
17 Coast and the Southeast Florida coast, that's the  
18 marine responsibility. We issue coastal waters  
19 forecasts four times a day, and we also talk  
20 about the surf zone and the responsibility in  
21 terms of the risk for rip currents every day,  
22 which is kind of a growing big deal here in South

1 Florida.

2           So in terms of weather hazards,  
3 tropical storms, of course, always get the  
4 headlines. But a lot of people don't know that  
5 tropical storms can also bring what we call the  
6 whole package of weather impacts, which include  
7 thunderstorms with lightning, rough seas, and, of  
8 course, waterspouts. Waterspouts are one of the  
9 most underestimated hazards that we have in terms  
10 of maritime risks for people out there because  
11 they are not as innocent as they may look.

12           When it comes to thunderstorms and  
13 lightning, the most common time for us to have  
14 thunderstorms is in the summer, and they can  
15 develop really quickly and surprise boaters on  
16 the water. And for port operations,  
17 thunderstorms can be critical because they can  
18 seriously disrupt your operations. So  
19 thunderstorms should be part of your planning and  
20 your response procedures because they can really  
21 cause delays, they can cause economic impacts to  
22 your operations.

1           The winter/spring cold fronts, they  
2           can also bring strong winds with them, but it's  
3           mostly the summertime when we can have the really  
4           big thunderstorms affecting the area. For this  
5           kind of weather, we issue what we call the Marine  
6           Weather Statements and the Special Marine  
7           Warnings. These are the two products that we use  
8           for our everyday operations, and of course, we  
9           always tell boaters tips of safety in our  
10          products.

11                 Where can you get these specific  
12          products? I'm going to show you the website on  
13          the next few slides. When we have rough seas in  
14          the area, we normally have either a cold front  
15          that is bringing northerly winds. We can also  
16          have north-northeast winds that come behind the  
17          cold fronts, or any kind of tropical system that  
18          could be in the area.

19                 And then of course, one thing to keep  
20          in mind is that the Gulf Stream can produce and  
21          normally does produce much higher seas. And this  
22          is one of the most important issues that we have

1 to deal here in the southeast coast of Florida,  
2 is how port operations need to interact and keep  
3 in mind that the Gulf Stream is there, and  
4 sometimes it can have a really, really  
5 significant impact, especially for the cruise  
6 line operations, big vessel operations, et  
7 cetera.

8           So the Small Craft Advisories that we  
9 issue are specifically designed to alert about  
10 hazards and dangerous winds and seas that boaters  
11 can face when they are offshore. Small Craft  
12 Exercise Caution, we normally issue those when we  
13 have events that are going to produce 15 to 20  
14 knots, or seas around 6 feet. When we issue a  
15 Small Craft Advisory, it means that we can expect  
16 between 20 to 33 knots or 7 foot seas or higher.

17           And it's important because sometimes  
18 we confuse the Small Craft Advisory with a gale  
19 warning, which is a completely different product.

20           Tropical systems like Irma, for  
21 example, last year, well when it comes to the  
22 impacts over land during hurricanes, it's much

1 easier for us to have a whole picture of what  
2 those impacts can do over land. However, it's  
3 not that easy, not that obvious, when it comes to  
4 port operations and port impacts.

5           This is Hurricane Charley in 2004,  
6 hitting the Punta Gorda coastline. So very  
7 strong winds and rough seas not only developed  
8 during the hurricane, but they also developed  
9 before the hurricane, and they can be resilient  
10 and stay in the area well after the hurricane  
11 forms.

12           It's critical for big vessel  
13 operations, for example, for cruise lines, your  
14 big vessels that are in your ports coming in and  
15 out, to make the right decisions and to be all  
16 the time aware of what the situation can be.

17           So when you have a situation like  
18 this, you normally have a chain of decisions that  
19 went the wrong way. You don't want to be caught  
20 in a situation like this because somebody took  
21 the wrong decision in terms of how to react to an  
22 event like a hurricane.

1                   Normally when this happens, it's  
2                   because you have a hurricane that is not coming  
3                   directly to your location. That's when people  
4                   normally take the wrong decision because  
5                   sometimes we look at a hurricane that is X amount  
6                   of miles away from your port or from your route,  
7                   and then you assume that you don't have to worry  
8                   about it, especially if you have a big boat.

9                   And that's one point I want to go into  
10                  details here with Irma because something like  
11                  that actually happened here in Southeast Florida.  
12                  When Irma was 24 hours away from our area, we  
13                  started experiencing 1 to 3 feet storm surge, and  
14                  it went up to 3 to 5 feet in the height of the  
15                  event.

16                  But the key is that Irma never made it  
17                  to the southeast coast of Florida or to Miami.  
18                  The closest point of approach was actually 80  
19                  miles to the west; that's almost 100 miles away  
20                  from the Miami area, and it was actually you have  
21                  the land mass of Florida between Miami and Irma.

22                  Close to 1,500 vessels were reported

1 lost in the Miami area, all the way to Port  
2 Everglades. How did that happen? How did we  
3 lose so many vessels if we have a hurricane that  
4 is so far away, and that's actually downtown  
5 Breckell? And for those of you who it's ringing  
6 a bell, the word Breckell, it's because that's  
7 exactly where we are right now.

8 So we had up to 3 to 5 feet of water  
9 inundation in Breckell. How did that happen if  
10 the hurricane didn't even get close enough to the  
11 Miami area? The key word is fetch. So  
12 hurricanes can build something that is called  
13 fetch, I know most people here know exactly that  
14 I'm talking about.

15 For those of you who have never heard  
16 the term, it's basically the interaction of  
17 strong winds over a big area, a big body of  
18 water, that then keeps building the seas and  
19 building the seas, up to the point where it  
20 starts creating long waves and coastal  
21 inundation.

22 The main factor for Irma was actually

1 the track. The track was ideal to enhance and to  
2 maximize the time that that easterly component  
3 wind had to interact with the surface of the  
4 water. We're talking about 2 to 3 days that the  
5 hurricane had to build up those seas. And when  
6 it came closer to the coastline, it actually had  
7 enough time to block the Gulf Stream flow to the  
8 north, and then create a pile up of water right  
9 along the coastline. And that's why we had all  
10 those impacts that we saw in the Miami area.

11 A lot of people thought they were  
12 safe; a lot of people saw the track and saw the  
13 hurricane going west, they assumed we don't have  
14 to worry about this hurricane. It's the west  
15 coast's problem. And that's the kind of  
16 mentality that we cannot afford during big  
17 events.

18 Always cross-check any second-hand  
19 report of -- storm surge impacts could happen  
20 well away from the storm. Always keep in mind  
21 that a hurricane is not just a point. You need  
22 to take into consideration the entire structure

1 of the hurricane.

2           Matthew came much closer in  
3 comparison, yet there were no major issues with  
4 it. Extremely important -- and this is the  
5 message that I want to emphasize today -- do not  
6 pay attention to rumors. Remain focused only on  
7 official information.

8           There were some waterspouts with Irma  
9 too, and one of the things that happens with  
10 waterspouts is that people don't move away from  
11 waterspouts; they tend to be attracted to them.  
12 It's very important to never underestimate  
13 waterspouts. This is the kind of thing that you  
14 don't want to be doing, and you don't want people  
15 to be doing nearby waterspouts, especially when  
16 they move close to shore.

17           When you have a waterspout touching  
18 land, we do have to issue a tornado warning.  
19 There's one key thing we need to keep in mind,  
20 especially for port operations; the Weather  
21 Service, contrary to popular belief, we normally  
22 don't have enough time to issue a tornado warning

1 for every waterspout that forms. Most of the  
2 time, I am not going to even see the waterspout  
3 on the radar.

4 So if you are responsible for port  
5 operations for any kind of marine operations, how  
6 to respond to a waterspout must be included in  
7 your preparation plan, in your action plan.  
8 Because unfortunately, when it comes to a big  
9 waterspout that can cause significant damage,  
10 you're basically on your own. It should be part  
11 of your response plan.

12 How do we help mitigating for all  
13 these kinds of impacts, and decision-making for  
14 all our partners? Well, we issue the products  
15 that I mentioned before, but we also issue gale  
16 warnings for 34 knot winds or higher, storm  
17 warnings for 48 knots or higher, and then of  
18 course your tropical cyclone products.

19 This is a traditional text form of our  
20 product, the Coastal Waters Forecast. You can  
21 get it at any of our Weather Service websites,  
22 weather.gov, slash, the city of your location.

1 This is the one for Miami, [weather.gov/miami](http://weather.gov/miami), and  
2 you can get a point-and-click forecast, which  
3 tells you specifics in terms of what kind of  
4 marine impacts we are expecting for the day and  
5 for the week.

6 We do a SRF product too, which you can  
7 also get at the [weather.gov/miami](http://weather.gov/miami), and we are now  
8 including rip current information in our  
9 products, which is one growing problem here in  
10 South Florida.

11 Finally, I keep emphasizing in these  
12 talks that for the next hurricane that we're  
13 going to experience here in South Florida, the  
14 product that you want to look first as a marine  
15 user, is the Marine Weather Warning, because the  
16 traditional hurricane local statement that the  
17 Weather Service issues is not going to include  
18 marine information anymore for your location.

19 Always look for the Marine Weather  
20 Warning, the MWW product, because if you have a  
21 hurricane that's going to have impacts on your  
22 marine zone and not over land, your hurricane

1 local statement is not going to have that  
2 information.

3 So one more product that I want to  
4 show you before finishing the presentation is one  
5 of our brand new models in the Weather Service.  
6 This is called the Near Shore Wave Prediction  
7 Model, or NWPS, and one of the cool features that  
8 it has is, it allows you to have an immediate  
9 visual representation of where we think the Gulf  
10 Stream is going to be, and how far from the  
11 coastline it's going to be, and how strong it's  
12 going to be.

13 Right now we have -- we started by  
14 doing a four-set ship routes; this one, for  
15 example, is Miami from Freeport, and along the  
16 route, you can see what we think is going to  
17 happen within the next 3 days, in terms of the  
18 Gulf Stream impacts, winds speeds, wind  
19 direction, et cetera, et cetera.

20 You can also get this information at  
21 [weather.gov/miami](http://weather.gov/miami), and if you need more details,  
22 you can talk to me after the presentation. I can

1 give you exactly the addresses where you can get  
2 this information.

3           The last thing I want to mention is,  
4 what do we need? What kind of support do we need  
5 in the Weather Service to keep working with these  
6 projects? Well, one of the things that we have  
7 in terms of needs is NOAA buoys. We don't have a  
8 reliable NOAA buoy source of observations in the  
9 area. And for us to keep doing this work and  
10 expanding, specifically, our model products, we  
11 need verification.

12           So we need NOAA buoys to actually keep  
13 comparing the data and keep fine-tuning the model  
14 so we can provide a much better service to the  
15 community and to our users in the marine  
16 community.

17           I think my time is up; that's all I  
18 have for you guys. Thank you for your attention.

19           (Applause.)

20           MEMBER ATKINSON: Thank you. By the  
21 way, when the Gulf Stream slows down, down here  
22 because of hurricanes, the sea level off Virginia

1 pops up a foot or two. We just discovered this  
2 about 2 years ago. So what happens down here  
3 affects us a thousand miles away; it's pretty  
4 impressive. So we too care about what the Gulf  
5 Stream is doing. I love the Gulf Stream.

6 Our next speaker is Dr. Samantha  
7 Danchuk, who is Science Coordinator for the  
8 Southeast Florida Climate Compact, which we  
9 follow very closely, what you're doing down here.  
10 And she's Assistant Division Director of the  
11 Broward County Environmental Protection and  
12 Growth Management Department.

13 DR. DANCHUK: Good morning, everyone.  
14 Thank you again for convening in Southeast  
15 Florida. We really, really, as I'll describe,  
16 have benefitted from any sort of federal  
17 technical assistance and the attention that  
18 you've given us. So we really appreciate that,  
19 of anywhere in the nation, you're here today.

20 Today I'm going to discuss how the  
21 region -- really, the four counties: Palm Beach  
22 to the north, Broward to the north, Miami-Dade,

1 where you are right now, and then Monroe County  
2 to the south, which is the Florida Keys -- have  
3 been working together for nearly 10 years on  
4 climate policy collaboration.

5           So what I mean by that -- and actually  
6 I'll give full credit to Congresswoman Jacobs  
7 initiating the Compact. The idea was, we really  
8 needed to collaborate to be able to communicate  
9 to the state our legislative priorities, to  
10 ensure that we were planning for future  
11 conditions related to sea level rise and ensuring  
12 that we were planning to reduce our emissions as  
13 a region, considering that we are nearly a third  
14 of the population of the state, and nearly a  
15 third of the gross domestic product. And we want  
16 to make sure our priorities are the state's  
17 priorities as well.

18           So one of the first steps was to kind  
19 of establish regional planning baselines. I'll  
20 discuss the Unified Sea Level Rise Projection.  
21 The four counties have agreed upon what we are  
22 planning for; we are planning for 2 feet by 2060,

1 and actually have a projection that goes out to  
2 2100.

3 Each of the counties has done a  
4 vulnerability assessment to understand what  
5 inundation risks we would be facing with sea  
6 level rise, as well as understanding what our  
7 emissions are, because we very much understand  
8 the loop between the more emissions that we  
9 produce, the more sea level rise we will have to  
10 plan for in the future.

11 We have just updated our five year  
12 plan, which is essentially our Regional Climate  
13 Action Plan. And if you're online, you can visit  
14 RCAP2.org, and you'll start to see how, no matter  
15 who you are within the community, you can pick  
16 and choose and develop your own climate action  
17 plan that will help us, as a region, get us  
18 towards our goals.

19 So just to highlight, because we're  
20 very proud, every year the Compact hosts a  
21 leadership summit, in order to organize all  
22 levels of government and align the elected

1 officials, as well as staff, on our goals towards  
2 working towards implementing the RCAP.

3 Last year we hosted it in Fort  
4 Lauderdale, Broward County was the host, and the  
5 theme was business of resilience. So recognizing  
6 that one of your priorities is now supporting the  
7 blue economy, there could not be a bluer economy  
8 than Southeast Florida, right? Considering  
9 fisheries, the beach management, supporting our  
10 tourism, real estate values, all that really is  
11 very, very connected.

12 So one of the major requests or issues  
13 that came up at the summit -- just to highlight,  
14 because there may be some data needs, and there  
15 will absolutely be a request for a study for this  
16 issue -- is, we recognize that our community is  
17 very much dependent on flood management, both in  
18 the inland area as well as the coastal area.

19 So the inland area actually is  
20 protected by flood control canals, as well as  
21 control gates, in order to maintain -- or prevent  
22 flooding in the inland areas. That's an Army

1 Corps project. And then the South Florida Water  
2 Management District manages those operations day  
3 to day.

4 Between the area between where the  
5 control gates are and the coast, there is  
6 actually not any flood protection. And then along  
7 the coast, we're facing issues which I'll  
8 describe and show you some pictures about,  
9 regarding sea level rise and increasingly  
10 frequent high tides that we're experiencing.

11 So as a result, we have some very real  
12 flood risks that will be increasing in the  
13 future, and so we are asking for federal  
14 assistance in order to analyze these problems and  
15 come up with some solutions.

16 We recognize that the responsibility  
17 doesn't just fall on the local government, and so  
18 we found that the business community is an  
19 essential and has been a very productive partner  
20 for us to begin to work together and align our  
21 advocacy both at the state and the federal level.

22 So let's show you what we're talking

1 about. This is a community in Broward, the city  
2 of Hollywood. This happens to be adjacent to an  
3 open boat ramp. So while you may have heard  
4 about sea walls being overtopped, we have lots of  
5 areas that are just open to the water, to the  
6 sea, or the Intracoastal, where you have flooding  
7 coming in so quickly during the high tides that  
8 occur in the fall season, that we're not getting  
9 just 5 inches of water or a foot of water; in  
10 this case, actually nearly 2 feet of water had  
11 built up in the community immediately adjacent to  
12 where this open flow area was.

13 That has an effect on, you know,  
14 emergency services that can be provided. The  
15 community is screaming for solutions and support,  
16 and needs quite a bit of funding in order to be  
17 able to address these issues and maintain their  
18 property values.

19 Also to highlight, our infrastructure  
20 needs to be adapted. So you can see here, the  
21 sea wall, at this point in time, is providing  
22 protection from overtopping. But you'll see a

1 lot of water inland to that sea wall, and that's  
2 because our ground is so porous that we have a  
3 great deal of seepage that occurs on the  
4 backside.

5 As a result, it requires a lot more  
6 maintenance for our roads. I just met with DOT  
7 last week, because we recognize that a lot of  
8 manuals need to change when you're designing  
9 roads that are going to be frequently flooded,  
10 when you're designing infrastructure that is very  
11 vulnerable to corrosion -- the steel in the sea  
12 walls was obviously not intended to be inundated  
13 with salt water every day -- so there's a lot of  
14 new kind of construction and design standards  
15 that we need to develop.

16 Here's another photo; the reason I  
17 like this is because it shows that it's not just  
18 the properties or the part of the community  
19 that's inundated immediately next to the sea  
20 wall. You can see that the water is propagated  
21 all the way inland, right, in this community.

22 Additionally, you may have heard that

1 we are putting a great number of storm water  
2 valves at the outfalls on the sea walls to  
3 prevent water from actually come in pipes that  
4 were intended for storm water to go out. And  
5 they can be miles inland, where you're getting  
6 flooding during a high tide, even though that  
7 community is not -- you wouldn't consider it  
8 surface-level connected at all.

9 Just to point out as well, with this  
10 picture, this community -- one, because they have  
11 not gathered the funds for a significant project,  
12 and it was the best solution -- they are moving  
13 around temporary pumps to pump those storm water  
14 areas into the Intracoastal. And if I showed you  
15 a picture of what this looks like today, this  
16 last season, it was actually very dry.

17 So there are solutions, and we are  
18 actively trying to address these issues as  
19 quickly as possible. But at some point, when  
20 we're talking about two feet of sea level rise,  
21 you know, a small, temporary pump is not going to  
22 address this type of issue.

1           So we are very fortunate in Southeast  
2 Florida to be going through another boom and  
3 redevelopment. What we recognize is that there  
4 is an incredible opportunity to build resilience  
5 into our community as this redevelopment is  
6 happening. We just need to develop the policy  
7 and the standards as quick as possible.

8           So this picture shows a brand-new sea  
9 wall and a community property that's about to be  
10 redeveloped; but in the case, at the time that  
11 this picture was taken, the city had a maximum  
12 sea wall height. So even if you wanted to put a  
13 brand-new one in, you couldn't go above this  
14 certain height. And so that hindered resilient  
15 redevelopment. So we are trying to look for all  
16 those opportunities and make sure we're updating  
17 standards as quickly as possible.

18           Just as I said, it's not just about  
19 sea walls. We also recognize that we need to  
20 look at future conditions when we're setting our  
21 base flood elevations, as well as considering all  
22 of our coastal infrastructure. And to help us do

1 that, we use the Unified Sea Level Rise  
2 Projection.

3 As I mentioned, this has been adopted  
4 by all four of the counties, which is very  
5 significant. We have 109 cities within those  
6 counties, and we have, for the most part, gotten  
7 all of the I think coastal cities to adopt this  
8 as well.

9 It's really important to have  
10 consistency in infrastructure standards. Think  
11 about it; if someone was developing a road in one  
12 county to this height, and then the next county  
13 says, oh, we're going to build ours to this  
14 height -- that, hopefully, would never happen,  
15 but that's the potential, is that you would have  
16 complete inconsistency in what people are  
17 designing to or building to.

18 You may recognize, so the orange curve  
19 along the top of the graph is the NOAA high  
20 curve, or what was the previous NOAA high curve.  
21 We absolutely encouraged having a NOAA  
22 representative be part of the technical advisory

1 committee for this group, as well as individuals  
2 from the Army Corps, experts from our local  
3 universities, as well as experts in engineering,  
4 and staff that had been working on this project.

5           You'll notice that we had previously  
6 -- this is actually the second iteration of these  
7 curves -- previously we had used what was kind of  
8 the low curve, maybe the NOAA low curve, and  
9 we've identified that, you know, in no case are  
10 we going to be following that curve. So you'll  
11 that the projection has actually moved slightly  
12 up, or, the bottom of the allowable design curves  
13 have been increased, because we recognize that  
14 under no emission scenario would we actually be  
15 following that curve. And I think that's  
16 consistent with what NOAA has found in their most  
17 recent report.

18           So just to highlight that we have done  
19 vulnerability assessments for each of the  
20 counties. You can see the areas in purple would  
21 be inundated by two feet by 2060. As I  
22 mentioned, seepage is a major issue, but really,

1 this isn't just seepage; the groundwater is  
2 rising about a foot for every foot of sea level  
3 rise we have in the coastal areas, you can see  
4 that highlighted in red. Our wells have  
5 identified that we've had an increase in  
6 groundwater table over time.

7 We know that our emissions are  
8 completely related to the sea level rise we will  
9 see in the future, and so as a region, we have  
10 been discussing ways to reduce those emissions.  
11 And so the website that I mentioned in the  
12 beginning, the Regional Climate Action Plan, is  
13 our five year plan in order to address mitigation  
14 as well as adaptation.

15 One highlight from Broward County is  
16 that we have actually put into regulation already  
17 what the future conditions for the groundwater  
18 table is, so now all drainage infrastructure has  
19 to be designed to that future condition, not  
20 historic or even present day. I think we're the  
21 first to do this, and there will be many more, I  
22 think, communities that will follow suit.

1                   Monroe County and the Keys is the  
2 first to really invest in adapting their road  
3 infrastructure with a solution that will allow  
4 them to adapt over time, as they already have  
5 roads that are regularly inundated, and they need  
6 to elevate them, but yet still provide water  
7 quality assurances so that they don't damage the  
8 valuable resources in the Keys.

9                   You may have heard about the Miami  
10 Beach projects, where they have invested  
11 significantly in pumps, in order to maintain dry  
12 streets, as well as elevate some of their, not  
13 only the roads, but the adjacent infrastructure.

14                   Miami-Dade County, which I'm sure Dr.  
15 Murley will talk about in just a moment, was the  
16 first to have to develop standards for a critical  
17 infrastructure, the wastewater treatment plants,  
18 so that now we're planning not just for sea level  
19 rise, but surge, and making sure that we are  
20 setting ourselves up for a point of avoiding  
21 failure.

22                   And then just to highlight again that

1 really we have shifted our perspective, now that  
2 we have vulnerability assessments, now that we  
3 are working towards resilience standards, we  
4 recognize that we need to shore up the regional  
5 economy as well, recognizing that we need to have  
6 these same conversations with the insurance  
7 industry, the real estate industry, and others,  
8 to ensure that we are mitigating losses at any  
9 particular -- wherever possible.

10 We have looked towards really creative  
11 designs for the future to try and envision living  
12 with water. We have invested in the NOAA PORTS  
13 system, both at Port Everglades -- our gauge just  
14 came online on March 2nd -- and as well, Port of  
15 Miami. Since you just went on the tour yesterday  
16 to see that, that is incredibly valuable to us,  
17 because as you will see, all our projections are  
18 based on Key West. That is because we did not  
19 have local data, and it does vary regionally.

20 In the study we're working on right  
21 now with the Corps, they did an analysis for us  
22 across the region, and there's significant

1 variation across the county. So it's valuable to  
2 have that somewhat local data.

3 We've worked with the Nature  
4 Conservancy, that is a Compact partner, in order  
5 to put all of the data that we had available  
6 about shorelines and beach projects and  
7 environmental resources into a tool that's  
8 available online to promote shoreline resilience.

9 As mentioned by Congresswoman Jacobs,  
10 we are very, very excited that there has been a  
11 designated Marine Conservation Area. I think  
12 that's critically important to protect our blue  
13 economy and the fisheries, and the marine  
14 resources that we have.

15 As I've mentioned before, really our  
16 priority right now is developing these regional  
17 resilience infrastructure standards. This  
18 picture is in there just as, kind of showing that  
19 there will be a learning curve to this; this is  
20 an area that has a brand new sea wall, but you  
21 can see, because of the way the joint was between  
22 the cap and the panels below, we're getting

1 flooding, even though it's brand new. So we  
2 recognize that there will be bumps along the  
3 road, but hopefully we'll be able to develop  
4 standards that will make sure that those  
5 investments are long lasting and long term.

6 This study is ongoing right now,  
7 working with the Army Corps of Engineers through  
8 their planning assistance for states. We are  
9 looking at King Tide flooding, sea level rise,  
10 and storm surge in two communities, Fort  
11 Lauderdale and Hollywood, to identify what really  
12 our sea wall height should be in the next few  
13 phases and the next few decades.

14 So in this modeling we are using the  
15 FEMA model that was used for the flood insurance  
16 studies, but we are actually looking at future  
17 conditions and different scenarios. And they  
18 actually refined the grid for us, so that we have  
19 a higher-resolution model.

20 So just to share what I think our  
21 regional priorities needs would be: as was also  
22 mentioned by Dr. Reynes was, we really could use

1 help with active offshore wave buoys in  
2 monitoring the Gulf Stream. As our moderator  
3 mentioned, so as the Gulf Stream slows, that will  
4 really affect our sea level rise projections, and  
5 right now we're just using kind of an order of  
6 magnitude to factor that in.

7 It would be great to watch that over  
8 time, especially because the change in the short-  
9 term trends has been so volatile lately. So  
10 really being able to understand that would be  
11 helpful.

12 Nearshore current data: we have had,  
13 you know, maybe someone put something out there  
14 for a week to monitor, or a month. Having that  
15 data would help us, not only with beach projects  
16 and planning for the port, but it would really  
17 start to benefit our environmental resources now  
18 that we have this conservation area.

19 We need to have a better understanding  
20 of where plumes or sediment is moving, and  
21 current data would support that. As a way of  
22 having better and more recent bathymetry within

1 the Intracoastal we'll really support the  
2 modeling efforts that are coming forward right  
3 now and our resilient studies, you can see  
4 they're at every level, whether it's county,  
5 city, and state. Everybody is using that  
6 bathymetric data right now, and in some cases,  
7 we're having to interpolate in order to answer  
8 the questions that we're getting after.

9 Any real time monitoring of the storm,  
10 as we're having more frequent, or at least more  
11 intense storms, we recognize that the more data  
12 we can have about the storm would be very  
13 helpful, whether it's high water marks or whether  
14 it's another way to kind of understand what the  
15 impacts of the storm were, other than me being  
16 sent out during the storm to try and collect some  
17 data -- which, of course, I would.

18 We recognize that issues that we  
19 haven't yet evaluated -- for example, scouring --  
20 is going to change as the depth of water changes  
21 with sea level rise. So those are types of  
22 things that we could use technical assistance and

1 data to help support. As mentioned previously,  
2 there has been a huge ask to the federal  
3 government, specifically the Army Corps of  
4 Engineers, to help us understand our flood risks  
5 across the county, with future conditions in  
6 mind.

7 So that will hopefully be part of  
8 the South Atlantic Division Resiliency Study that  
9 hopefully will be appropriated soon, if it hasn't  
10 already. It was confirmed? Okay, good.

11 So we know that there will be data  
12 products that will be very helpful for that  
13 resilience study, because the same amount of work  
14 that's been done up north has not been done down  
15 here yet. So we recognize that will be an  
16 upcoming need.

17 As well, as I had mentioned, you know,  
18 working with DOT and other agencies as they  
19 develop their design manuals for these future  
20 conditions. They really will need the support of  
21 being able to -- whether it's just water level  
22 monitoring, whether it's other pieces of data --

1 as they update these design manuals, they may  
2 need some additional data from NOAA.

3 And then, of course, I know that all  
4 the agencies have set this as a goal and have  
5 been working increasingly hard after every storm  
6 to make this possible, but the sooner that we can  
7 get data after a storm at the local level helps  
8 us incredibly with planning, whether it's  
9 emergency projects, or if it's immediately just  
10 trying to get things back up and running. So  
11 we're very grateful, the more you can expedite  
12 post-storm access to data. Thank you.

13 MEMBER ATKINSON: Thank you very much,  
14 amazing.

15 (Applause.)

16 MEMBER ATKINSON: I noticed one thing  
17 that our cities have that you haven't done yet:  
18 we have no wake signs on our streets.

19 DR. DANCHUK: Did you see the wake?

20 MEMBER ATKINSON: Yes, I saw that.  
21 That's why I remembered it. Yes, this is  
22 amazing. The process with the Corps, I know in

1 Norfolk, our 3x3x3 is all done, so we have a  
2 billion dollars' worth of construction projects  
3 just waiting to be funded. So that's what's been  
4 going on.

5 Our next speaker is Mr. James Murley,  
6 Chief Resilience Officer for Miami-Dade.

7 MR. MURLEY: Well, welcome to Miami-  
8 Dade County. I know you've been here a couple of  
9 days, and you were introduced to our mayor at the  
10 port and have heard a lot. I'm going to segue  
11 off of the remarks that Kristin made, and Sam,  
12 and maybe introduce a little bit more about how  
13 we use the term resilience here, in the context  
14 of some of what you guys work on, and I look  
15 forward to questions.

16 We've been at this for a while, going  
17 back in Dade County to the importance of our  
18 beaches. I mean, Florida is beaches, and beaches  
19 are Florida. And the entire sandy coastline of  
20 our county is a federal authorized beach  
21 nourishment project that we work in partnership  
22 with the Corps on, and we're having some

1 problems, even today, from some of the storm  
2 events that have been experienced along the East  
3 Coast. So obviously, beaches play a big role in  
4 an area that depends on tourism.

5 We've just approached this from a  
6 number of different ways, and you'll see that  
7 some of the things that Sam has talked about,  
8 including the Compact -- here in Miami-Dade, we  
9 had a sea level rise task force that refined the  
10 regional recommendations, and we are a member of  
11 the Rockefeller Foundation 100 Resilient Cities  
12 Program, which I'll talk a little bit about.

13 This map, just maybe to orient you,  
14 again, we're really a strip of urban area  
15 surrounded by water: the wetlands of the  
16 Everglades to the west, and the ocean to the  
17 east. And you know, over a hundred years ago,  
18 that urban area wasn't there; it was just water  
19 and wetlands, and it wasn't a very pleasant place  
20 to be.

21 So the only way we've been able to be  
22 here over that last 100 years is, we learned to

1 live with water, and we learned to manage water,  
2 and we made some mistakes. We're willing to  
3 admit those and go back and try to fix them.

4 The only way we'll be here a hundred  
5 years from now is to learn to live with water and  
6 to manage that in an active way, an iterative  
7 way, with partnerships and data and technology.  
8 It's just absolutely our destiny.

9 Our destiny is our geography, because  
10 of our proximity to tropical storms -- that's a  
11 given -- and our geology, which we've referred as  
12 to how porous it is; it's lime rock. It's very  
13 stable, so we're not sinking like Norfolk, but  
14 it's really porous, so bulkheads and dikes don't  
15 seal you off. And that causes all sorts of  
16 issues. But again, it's part of being and living  
17 in South Florida, and we assume that and adapt to  
18 it.

19 There are about 6 million people on  
20 the three counties, about 2.7 in our county.  
21 We're geographically the size of Rhode Island,  
22 and we have a county metropolitan form of

1 government. So with 34 cities, the county has  
2 certain levels of activity that are only done at  
3 the county level, including our port and airport.  
4 And there are a lot of similarities between us  
5 and Broward -- some minor changes, but a lot of  
6 similarities, as we've developed these two large  
7 urban counties.

8 At the county level, really these are  
9 the focus of what we're trying to do in terms of  
10 our adaptation framework -- we have a real focus  
11 on infrastructure at the front end, dealing with  
12 the data that we receive from the region in terms  
13 of -- and from many other federal sources.

14 We have to keep our communities  
15 resilient in many different ways, which I'll talk  
16 about later; the importance of the economic  
17 activities -- if we don't have a strong economy,  
18 we essentially can't invest in the resilient  
19 activities that we need for the future, so they  
20 go really hand in hand.

21 And that map which I showed you a  
22 minute ago showed all that area to the west,

1 which is essentially the Everglades and our water  
2 management areas. That is our green  
3 infrastructure; we need that to be vital, and we  
4 have to be able to manage it, because it's part  
5 of being able to be resilient and to protect the  
6 urban area.

7 In our county, we are a large county  
8 water and sewer district, so we have rate payers  
9 and tax payers. But the rate payers are  
10 responsible for pretty much all of the water and  
11 sewer conditions. So we have to maintain those;  
12 this is critical to us, and we are in the process  
13 of a large upgrade of that system. It will go on  
14 for a number of years, and it will cost over \$10  
15 billion.

16 But it is being designed -- because of  
17 the data from the region, and because of the  
18 county task force, it is essentially being  
19 designed -- and each piece of it factors in how  
20 long that piece of infrastructure is going to be  
21 expected to last -- but just for our purposes,  
22 about three feet of sea level rise and a

1 hurricane five storm surge on top of it.

2 So that elevates a lot of heavy  
3 infrastructure at our three treatment plants,  
4 which out of a sense of legacy decisions, are all  
5 on the coast. So it means if we're going to keep  
6 those systems running, they -- we're going to be  
7 investing that kind of money and with that kind  
8 of data as we move forward.

9 Roads -- that is a road coming off the  
10 mainland and joining Miami Beach. That is a non-  
11 rain event, King Tide, flooding those streets.  
12 And now those streets have been elevated about 2  
13 or 3 feet and are maintained by a system of  
14 pumps.

15 We're also looking at residential  
16 streets, following the lead of a lot of work that  
17 Broward's doing and trying to work at the  
18 individual neighborhood scale.

19 Using the experience we had at the  
20 water and sewer department, we've taken that  
21 information and now we've adapted it. We've  
22 essentially given all of our county

1 infrastructure a stress test. And we've looked  
2 at what's their vulnerability and what's their  
3 criticality. Their vulnerability comes through  
4 assessing their location and their elevation and  
5 what is the infrastructure there. The  
6 criticality is the ability to come back online  
7 after a storm event.

8           So our airport and our port are a  
9 criticality 5; our parks are criticality 1, since  
10 we can leave them to hold that water and other  
11 things. But every piece of infrastructure now is  
12 getting prioritized. That goes into our local  
13 mitigation strategy, when there's money to  
14 distribute to that -- and now there is, because  
15 of the federal government, and also in our  
16 capital improvement's plans. And it gets very  
17 detailed data in what we call the Rapid Action  
18 Plan.

19           Now a minute about the resilience  
20 under the Rockefeller Foundation's work. They  
21 are in 100 cities in 6 continents. So this is an  
22 international experiment to think about how large

1 urban areas deal with resilience -- not just  
2 climate resilience, and not just events, but  
3 basically a series of shots and stresses. And  
4 this is important to how communities which have  
5 varied interests, and climate resilience and  
6 climate impacts are very important, but so are  
7 the lack of affordable housing and a  
8 transportation system.

9           And what's really interesting, when  
10 you -- when I talk about this approach with my  
11 elected officials, is where sea level rise  
12 appears on that diagram. And you'll see it's in  
13 the bottom right, it is a stress, not an event.  
14 And this is constant education for elected  
15 officials, to understand how sea level rise is a  
16 constant change in the ambient condition behind  
17 the events, and it's making the events more  
18 severe.

19           They really don't understand until the  
20 event happens, because can't -- they will ask me,  
21 can I go out and see the sea level rise today?  
22 And of course you guys all know, that's not going

1 to be happening in that way. But they need to  
2 understand how it is something that they are  
3 going to be living with for the next hundred  
4 years of the people who succeed them.

5 So this approach allows us to put all  
6 that into context and develop a strategic  
7 resilience strategy which is going to be looking  
8 at six discovery areas, including climate and the  
9 economy.

10 You heard all about the Port of Miami,  
11 so I'm not going to say much more. I hope you  
12 heard about the Port of Miami River. Did you  
13 hear about that yesterday? Because that's a very  
14 important part of the maritime commerce, because  
15 it's shallow water, and it is an authorized  
16 channel; it's within the City of Miami in Miami-  
17 Dade County.

18 But when the islands were hit by all  
19 the storms in the last season, the first relief  
20 ships came out of the Port of Miami, because they  
21 had the shallow water draft ability to go into  
22 some of those islands and unload before the

1 airports were open. So it's an important link in  
2 our system.

3 I wanted to mention this: a lot of the  
4 data now has been picked up by commercial  
5 interests, and we have commercial firms here in  
6 South Florida that are, for a fee, telling people  
7 what their risks are in the future. So I think  
8 this is an important sign. When there's a  
9 business model out there that takes this risk  
10 information and takes the data, much of which  
11 comes from the agencies and from our work, and  
12 then they basically put it into a business model  
13 and they compete with each other.

14 They're using new technology, and  
15 they're employing people. And I think this is a  
16 very important signal, and it's very evident in  
17 our area that the private sector is going to play  
18 a big role in how people come to understand the  
19 use of this information.

20 And I'll close with the fact that  
21 there are, at the state level, organizations that  
22 are trying to look at this. There are

1 cooperative groups; the Florida Ocean Alliance is  
2 one, Resiliency Florida is another, that Member  
3 Jacobs is very much involved in, at this point.  
4 So at the Florida level, our region is working  
5 with other regions around our state, cities, and  
6 private sector folks and our academia to try to  
7 solve and address these issues.

8 I'll look forward to answering  
9 questions in the future. Thank you.

10 MEMBER ATKINSON: And our next speaker  
11 is Mr. David Anderton, Assistant Director of the  
12 Port of Everglades.

13 MR. ANDERTON: And it's still morning.  
14 Good morning, everybody, thank you for having me  
15 here today. I'm going to sort of build off a lot  
16 of the things that have already been discussed  
17 and talk about the port in general: the economic  
18 impact of the facility, talk about some of our  
19 environmental initiatives that we have ongoing.  
20 And then I will also talk about some partnerships  
21 that we have with universities that are looking  
22 at sea level rise and different types of events

1 at the port, and then what we're doing from an  
2 infrastructure standpoint, from a design  
3 standpoint, to deal with climate change, sea  
4 level rise, et cetera.

5 Jim talked earlier about east, the  
6 ocean; west, the Everglades. This is pre-port,  
7 1925. Lake Mable, a brackish lake in South  
8 Florida, and that is what became Port Everglades.  
9 The port officially opened in 1928. That area  
10 that you saw that was just to the west of the  
11 lake, it was an agricultural area, the city of  
12 Dania Beach, a lot of tomato farming going. And  
13 that's what spawned the development of the port.

14 What you may not know about Port  
15 Everglades is that we are the number one  
16 container port in Florida. The overall economic  
17 impact of the facility is about \$29 billion,  
18 based on our FY17 economic impact analysis. So  
19 it's a huge job creator, a huge economic engine  
20 for the region, and the revenue that we make at  
21 the facility we put right back into the  
22 infrastructure to grow the business, which in

1 turn creates jobs.

2 Another important thing that I'll  
3 point out up here is, you see that we're the  
4 number two petroleum port in Florida. Port  
5 Everglades is a strategic port from that  
6 standpoint, in terms of providing petroleum  
7 products to South Florida, and we'll talk a  
8 little bit about that as well.

9 Very quickly, area boundaries. The  
10 facility itself is about 2,300 acres. We're a  
11 landlord port, so we're not an operating port.  
12 We lease facilities to different tenants from a  
13 container standpoint, and also cruise lines with  
14 terminals, et cetera.

15 Some of the other things that you see  
16 up here, you see our anchorage; we work with the  
17 U.S. Coast Guard -- I guess it's been about 6 or  
18 7 years ago, to actually move that a little bit  
19 further out. Previously that anchorage had been  
20 located in between the second and third reef, and  
21 it's now been pushed out beyond the third reef.

22 You also see, at the bottom of the

1 slide, the U.S. Navy area. Just on the south  
2 side of the inlet, the U.S. Navy has a small  
3 operation there, and they run submarine  
4 operations very frequently out in that area.

5 The blue area up to the right, that's  
6 the ODMDS; the smaller square is the current size  
7 of the ODMDS. As you probably know, we are  
8 working with the Corps of Engineers to deepen and  
9 widen the facility, and at the same time, we have  
10 an environmental analysis going on with the EPA  
11 to expand the ODMDS to accommodate for the amount  
12 of material that will come from the dredging  
13 event.

14 Population growth. So, juxtaposed you  
15 see the growth in population against the size of  
16 container vessels. They continue to get larger,  
17 and what's interesting about the population  
18 growth is that -- Jim, I think, mentioned that in  
19 the state of Florida, I think it's about 16  
20 million people. But during season, that  
21 population grows to almost 100 million people.

22 So there's a lot of visitors who are

1 coming to South Florida besides the people who  
2 live here permanently, and it creates a huge  
3 consumptive market, particularly in South  
4 Florida, hence the need for the ports -- not just  
5 Port Everglades, but Port Miami, and the ability  
6 to bring in that cargo to support that  
7 consumptive population.

8 Now we look at cruise vessels. The  
9 size of these vessels have grown immensely as  
10 well. Port Everglades is fortunate enough to  
11 have two of the largest cruise lines' home port  
12 at the facility: Royal Caribbean and Carnival.  
13 And the Oasis class vessel that you see at the  
14 very top and in the picture is actually the  
15 largest cruise ship in the world today. It holds  
16 about 6,000 passengers and about 700 crew.

17 So I briefly touched on petroleum, and  
18 so I talked about how we're a landlord port. Our  
19 petroleum facilities are actually privately  
20 owned. All of the large oil companies are at  
21 Port Everglades, it's not a refining port. We  
22 provide all of the gasoline to 12 counties in

1 South Florida, and all of the jet fuel to Miami  
2 International Airport and Fort Lauderdale  
3 International Airport via pipeline, and we also  
4 supply Palm Beach International Airport as well.

5 Now I want to talk a little bit about  
6 some of the things we're doing from an  
7 environmental mitigation standpoint. We have a  
8 very large, intensive capital improvement program  
9 that we are currently implementing; our 5-year  
10 capital plan is almost a billion dollars. This  
11 is a project that we completed not too long ago,  
12 in advance of taking a one-berth facility and  
13 turning it into a five-berth facility to increase  
14 capacity.

15 So, this project, we planted about 16  
16 1/2 acres of mangroves; I think the total was  
17 about 70,000 mangroves. And this allowed us to  
18 then expand our Turning Notch facility, which is  
19 currently in construction now, to that five-berth  
20 facility.

21 Just south of the port, we have one of  
22 the last, I guess largest-standing mangrove areas

1 in South Florida. It's West Lake Park within in  
2 the City of Hollywood. It's actually where I  
3 reside. I reside not very far from this park  
4 itself.

5 And in addition to the mitigation that  
6 we completed in advance of the Turning Notch  
7 project, we have a project that we will be  
8 implementing in West Lake Park to enhance that  
9 facility to do additional mitigation for the  
10 Turning Notch, and then also mitigation related  
11 to our deepening and widening program with the  
12 U.S. Army Corps of Engineers.

13 Coral reef restoration. Speaking of  
14 the deepening and widening project, some of the  
15 mitigation that's proposed for the deepening and  
16 widening project includes the relocation of  
17 existing corals in direct impact areas.

18 And one of the innovative things that  
19 the Corps, in conjunction with other federal  
20 agency partners, are looking at is the ability to  
21 grow coral offshore in nurseries and then plant  
22 that coral in areas within Broward County. So

1 it's sort of a unique mitigation approach; I  
2 don't believe there's been another deep-draft  
3 navigation project that the Corps has conducted  
4 that has gone down this route. It's a fairly  
5 innovative and new way of dealing with  
6 mitigation, in terms of growing coral in  
7 nurseries, and we're very proud, as Broward  
8 County, to be part of that sort of innovative  
9 approach to mitigation.

10           Within in facility you can see the  
11 canal up at the top of the slide there. We have  
12 a power plant; FP&L operates a power plant within  
13 the facility. That plant actually just switched  
14 to natural gas. It's been about 3 years ago now,  
15 I believe. And the warm water from the cooling  
16 of the plant attracts manatees, so during the  
17 winter season, right outside my office, I see  
18 many times, at this time of the year, up to 100  
19 manatees in that canal, enjoying the warm water  
20 because they're attracted to it during the winter  
21 season.

22           Sea turtle nesting and stranding. As

1 you see Hollywood just to the east there, with  
2 the beach; very, very populous with sea turtles,  
3 and the port has done things in terms of  
4 lighting, reducing lighting, switching to LED  
5 lighting, adjusting lighting, to benefit the sea  
6 turtles during the nesting season.

7           And one of the other things -- well,  
8 I'll get to the other slide about that in a  
9 minute. Upland habitat restoration -- we're  
10 taking a pretty aggressive approach at the port,  
11 in terms of beautifying the facility, and we're  
12 doing that in a way that's using Xeriscape and  
13 things like that, which is important.

14           This is a study that we completed  
15 recently in conjunction with EPA. It was the  
16 first study of its type. We partnered with EPA  
17 to do a baseline air emission study at the port,  
18 and it was really the first time that that had  
19 been done at a port.

20           We belong to a program that's called  
21 Green Marine. It's an environmental management  
22 program. We have belonged to that program for 3

1 years, and over those 3 years, we've had  
2 remarkable improvements in terms of the different  
3 areas of the program and improvements that we  
4 make from an environmental standpoint.

5 And this air emissions inventory gave  
6 us a baseline from an emissions standpoint. And  
7 we set standards, we look to improve using DERA  
8 grants, other things of that nature, in order to  
9 reduce emissions and also work with our partners  
10 in the shipping lines and cruise lines as well.

11 So we talked a little bit about the  
12 sea turtles, one of the things that I've been  
13 working with the staff on lately at the port is  
14 doing a full inventory of our lighting. I talked  
15 about some of the smaller things that we've done.  
16 But we also understand that we have a lot of  
17 high-mast lighting at the port related to our  
18 container terminals. Those high mast lights are  
19 the older type of lights that are high-pressure  
20 sodium, metal halide, very bright lights.

21 So, what I've asked the staff to do  
22 is, let's do an analysis of what we have. Let's

1 figure out a program where we can systematically  
2 replace those lights to be more turtle friendly,  
3 if you will. And it's not only turtle friendly,  
4 it's also cost friendly as well, because LED  
5 obviously doesn't cost as much money as it does  
6 to burn metal halide, high-pressure sodium.

7 So that's something that's underway  
8 now. The inventory is almost complete, and then  
9 we will systematically start replacing lights  
10 within in the port with more friendly lighting.

11 I talked a little bit about the DERA  
12 grant; we've taken advantage of that over the  
13 years. The picture shows we retrofitted some  
14 pilot boats, we've retrofitted some vehicles,  
15 bought new vehicles and also bought new forklifts  
16 that are more obviously environmentally friendly,  
17 taking advantage of that program, and we continue  
18 to look for ways to improve in terms of those  
19 types of emissions.

20 We have a parking garage that's under  
21 design right now. We're going to be  
22 incorporating solar into that parking garage, and

1 we will be powering all the lighting, et cetera,  
2 associated with that garage from solar power.

3 I talked a little bit about the study;  
4 this is the study that we are in the final stages  
5 of, with Florida Atlantic University. There's a  
6 few other folks involved as well, and this  
7 particular study ran different scenarios --  
8 scenario planning, if you will -- on flooding and  
9 sea level rise, to give us an idea based on  
10 different, you know, levels of flooding and sea  
11 level rise, how that impacts the facility.

12 Samantha, I think, has been involved  
13 in part of that, and obviously we've collaborated  
14 a lot with Samantha and Dr. Jurado's group on  
15 those types of issues.

16 This is another assessment that was  
17 done with the University of Illinois, and this  
18 was more based on simulations related to  
19 terrorist attacks and things of that nature. The  
20 sea port being a hub, how does an event like that  
21 affect the downstream of the supply chain? So  
22 another example of scenario planning, but just

1 from a different type of vantage point.

2 We continue to do internal assessments  
3 at the port using lidar data. We have an  
4 extensive security network at the port; I think  
5 we have over 150 miles of fiber within in the  
6 port that connects to cameras, etc. So we are  
7 looking at the elevations of those junction boxes  
8 and started to think about how and what we're  
9 going to need to do, because of sea level rise,  
10 to ensure that that type of infrastructure  
11 remains resilient.

12 So in addition to the billion-plus  
13 dollars that we're investing over the next 5  
14 years, over the next 25 years at the port, just  
15 like most of America, we have aging  
16 infrastructure. And our aging infrastructure is  
17 our bulkheads, so we've come up with a  
18 replacement plan for all of our bulkheads within  
19 the port over the next 30 years.

20 The first project is actually in  
21 design now, and you see a cross-section of that  
22 now. And what we're doing is, we're designing

1 the bulkhead, and particularly the cap log, in a  
2 way that will allow us to add linear footage to  
3 it over time related to sea level rise.

4 I don't know if there's a pointer on  
5 here or not, but if you look on the top left-hand  
6 corner, you can see the hatched lines. And those  
7 hatched lines would actually raise the cap wall  
8 in 2-foot increments as needed. So the rebar,  
9 everything else that's included in there would  
10 allow that to occur at a future time.

11 This is just a picture of post-  
12 Hurricane Irma. You can see the turbidity,  
13 obviously pretty significant. I talked about how  
14 Port Everglades is very strategic from a  
15 petroleum standpoint; we work very closely with  
16 the U.S. Army Corps of Engineers and the U.S.  
17 Coast Guard. We were actually prioritized as the  
18 first port, really, in Florida, that is  
19 benefitted with the U.S. Corps of Engineers  
20 coming down, doing their surveys, to get the port  
21 back open so fuel can get both in and out of the  
22 port via trucks and pipeline.

1                   This is just an example of the  
2                   collaboration that we are constantly doing. I  
3                   talked a little about our deepening and widening  
4                   program; we formed an inter-agency working group  
5                   that is focused on the monitoring plan for the  
6                   deepening and widening project.

7                   And in addition to that, they actually  
8                   helped develop the protocols for the surveys that  
9                   were done as part of the pre-construction  
10                  engineering design phase. That group is made up  
11                  of individuals from National Marine Fisheries  
12                  Service, NOAA, obviously, EPA, and various state  
13                  and other federal agencies.

14                  And with that, that's it. Thank you  
15                  very much, looking forward to answering any  
16                  questions.

17                  MEMBER ATKINSON: And our next and  
18                  final speaker is the Honorable Chip LaMarca from  
19                  the Broward County Commission.

20                  HON. LAMARCA: Thank you, sir. Well,  
21                  good morning, great to be here, and I know that  
22                  my position is between one of my favorite things

1 in Broward County and the economic engine that is  
2 Port Everglades, and David's presentation and  
3 lunch.

4 So I will try to be brief, and I want  
5 to give you a little perspective from the elected  
6 body's perspective, and I want to thank the  
7 previous work from State Representative Kristin  
8 Jacobs and our staff of Dr. Danchuk and Dr.  
9 Jurado, and our partners at, as David mentioned,  
10 Port Everglades and Fort Lauderdale International  
11 Airport, major infrastructure partners in our  
12 community, economic drivers in our community, and  
13 as David mentioned, a lot of -- some of their  
14 infrastructure work will be part of what the  
15 county is trying to achieve over time.

16 The unique position that I have, I  
17 guess, on the county commission that has been  
18 interesting in getting to know some of the  
19 projects that we're doing in and around sea level  
20 rise, resiliency, and dealing with our challenges  
21 with the changing climate, is that I worked for  
22 many years in the environmental and construction

1 industry that was actually inside Port  
2 Everglades.

3 So I had worked with hydrogeologists,  
4 worked with water table maps, and designing  
5 ground water and soil remediation systems before  
6 I ever knew that I would be dealing with anything  
7 from the level of dealing with policy in Port  
8 Everglades, so it's very interesting to have put  
9 those two together.

10 One of the things that Jim mentioned  
11 -- we're turning a corner, I guess, from a  
12 perspective of the business community and science  
13 working together, when you have models and  
14 consultants and companies out there, they're  
15 developing models to measure the impact of what  
16 sea level rise will be with your property, with  
17 your investments, with your business assets.

18 One of the things that I've spent  
19 quite a bit of time outside of Port Everglades,  
20 going to many trips to Tallahassee and Washington  
21 D.C., advocating for our port projects, but also  
22 our beaches. Our beaches are a tremendous

1 economic engine to our community. As Jim said,  
2 you can't have South Florida without beaches. He  
3 did forget air conditioning, that was also  
4 important too.

5 So we understand water, we also have  
6 to understand that we needed air conditioning  
7 back when. But he had a slide up that showed  
8 Miami-Dade had started their beach re-nourishment  
9 program back in 1975. And I recall 1973, in  
10 Lauderdale-By-The-Sea in North Fort Lauderdale,  
11 we had started doing similar projects.

12 So having grown up in this area and  
13 spent some time in different areas of business  
14 and watched that beach re-nourishment project  
15 happen, and then for 19 years, kind of went dead,  
16 and that's basically -- it took us 19 years to  
17 pull the permit through the state and federal  
18 agencies to re-nourish our beaches.

19 And one of the things I would say to  
20 the process is, we certainly appreciate the help  
21 our federal partners, especially in the technical  
22 area, and our state partners really starting to

1 build up the beach program, but we were able to  
2 see the actual impacts. This slide here is right  
3 after, about a month after -- it was actually the  
4 day after Thanksgiving, which was a month after  
5 Superstorm Sandy, which was in October. And we  
6 had wave activity and storms that caused some  
7 very bad damage to our -- not just to our  
8 beaches, but also A1A along the coast.

9 And that is -- that's a side, almost  
10 cross-section of the road, where you see those  
11 concrete barricades under the water. Those were  
12 actually brought over from the I-595 project to  
13 try to keep some of the water out and save the  
14 road, and they weren't much of a match for it  
15 either.

16 As you see, that's just after the  
17 damage was done, and that's where we lost quite a  
18 few of the palm trees, and a few of the lifeguard  
19 stands went out to sea. That's Highway A1A, our  
20 Fort Lauderdale beach, and that sand that's piled  
21 up to the east is a lot of what was accumulated.

22 And we were in big danger of losing

1 that road from an integrity standpoint, and from  
2 a structure standpoint. And what we were able to  
3 do was to work with our state partners at the  
4 Florida Department of Transportation and  
5 reallocate some project dollars from the Orlando  
6 project in a different district and shore up that  
7 beach.

8           Again, you never know where life is  
9 going to take you, but having spent quite a bit  
10 of time working in the construction side of  
11 underground fuel tanks, did a lot of sheetpiling  
12 and shoring in different areas, and that's  
13 actually what we ended up doing here to shore up  
14 the road.

15           Those are 45-foot-long into the ground  
16 sheetpiles, steel sheetpiles, and what we ended  
17 up doing is, after this half mile of road -- of  
18 beach and road were restored, looking down the  
19 road, we were waiting to do the Segment 2 beach  
20 project, which was, I think when I joined the  
21 county commission, was about a forty-million-  
22 dollar project, and when we did it, it was \$55

1 million.

2           It also went from an ocean dredge to  
3 an upland truck-haul project. So this -- that  
4 sheetpiling there ended up staying in the ground  
5 to provide additional protection for that  
6 particular hotspot, and when we rebuilt the  
7 beach, rebuilt the sidewalk, that became what's  
8 known as the Wave Wall in Fort Lauderdale. It's  
9 a low-lying, decorative wall that has a lighting  
10 feature -- fiber optic lighting feature, but  
11 those sheetpiles are actually still in the  
12 ground.

13           As we go -- that's the process of  
14 putting that part of the beach together. And  
15 there was mentioned -- well, in this area, that's  
16 right about Sunrise Boulevard, if anyone has been  
17 to that area of Broward County, there's a state  
18 park there called Hugh Taylor Birch Park. And  
19 Hugh Taylor owned 9 miles of beachfront in  
20 Broward County at one point, all the way down to  
21 Hollywood. And that particular area was deeded  
22 and put in trust, and that's the other side of

1 that road. Just the thought of losing, not just  
2 that road, but having impacts to the park.

3 One of the things I think is really  
4 important, when you go to your state capital or  
5 you go to your federal partners, and you ask them  
6 for money, your hand is out, you're always asking  
7 for money, and you're advocating, whether it's  
8 the agencies or the elected officials putting it  
9 into the budget, I think it's important that you  
10 go back to say thank you.

11 We did that here in Broward County in  
12 South Florida, not only because we appreciated  
13 what was done from the agencies and from the  
14 state and federal budgets, but we also have  
15 Segment 3 coming up, and our port project, where  
16 we're going to be doing a sand bypass, and then  
17 hopefully in my lifetime, getting Segment 1 into  
18 a public land.

19 So I think that, working with the  
20 agencies and working with the folks who  
21 appropriate the dollars, it's important to thank  
22 them for what they do.

1           So kind of going back into what we're  
2 doing -- as was mentioned, this beach project  
3 just doesn't affect the fact that we have  
4 pristine, healthy beaches, and we want to have a  
5 nice beach in Broward County; we have roughly \$4  
6 billion in upland infrastructure that's at risk  
7 if anything ever happens there.

8           One of the things that was very  
9 important is our tourism industry. Just like  
10 here in Miami-Dade, Broward County and kind of  
11 the Tri-County area is a big tourism destination.  
12 Outside of Disney World, beaches are our number  
13 one asset, and South Florida is where people come  
14 to get away from -- I think it's still snowing in  
15 parts of the Midwest and North, and people come  
16 here to enjoy that.

17           Well, part of this project wasn't just  
18 that, but in Broward County, we have about 15 to  
19 16 million visitors who spend about \$15 billion  
20 in our economy, just in Broward.

21           And the other part of this -- and you  
22 wouldn't think this would be an issue talking to

1 -- I'd say landowners and condominium, so they  
2 all own a little bit of that infrastructure of  
3 the beach as their own back yard. But when we  
4 were putting this project together, it was  
5 tremendously important that we included a dune  
6 system along the beach.

7           And why that was important -- I don't  
8 have to tell anyone in here the scientific reason  
9 why it's important, but the areas -- there's only  
10 one building that did not accept the project  
11 behind their building, and they actually had some  
12 water damage, had some issues. Our goal was to  
13 have, I believe, about 80 percent of our  
14 shoreline, we have about 25 miles of shoreline in  
15 Broward County, and from north of Port Everglades  
16 to Palm Beach County is about 74 percent of that  
17 shoreline. So those beaches will continue to be  
18 maintained.

19           One of the things that was important  
20 to me from an economic standpoint is, in having  
21 spent some time, my entire life, actually, in the  
22 construction design industry is, if we fix the

1 beach today and we have a bad storm and have  
2 damage, even if the federal agencies come in to  
3 rebuild to the template and the do all that's  
4 needed to be done to return it to what it was,  
5 what happens when we have small storms? What  
6 happens when we have weather events like after  
7 Superstorm Sandy?

8 One of the things that we did is we  
9 utilized some common sense in the building world  
10 and the engineering and science at the county,  
11 and we actually maintained at keeping that permit  
12 open for a period of 12 to 15 years. So that if  
13 we do have any issues of hotspots, we can come in  
14 and do a small truck haul in a half-mile area,  
15 whatever it might be.

16 We see a lot of that being a major  
17 issue down in Hollywood, near the Diplomat Hotel.  
18 There's constant erosion in certain areas, and I  
19 think we also know why that is. Other than them  
20 being hotspots, we've got some areas with groins  
21 and other things, that when they were put in they  
22 were probably a good idea, but somebody else is

1 going to pay the price down south from the  
2 littoral flow. So that was important to us.

3 And one of the things I wanted to also  
4 highlight, the state of Florida did -- 3 years  
5 ago, almost 4 years ago -- in 2014 did an  
6 amendment on the ballot, a referendum on the  
7 ballot to put a percentage of our doc stamps into  
8 a land acquisition trust fund. And one of the  
9 efforts -- and Representative Jacobs has been  
10 very helpful with this, we're almost there.

11 We have now, as our state beach  
12 program, it's been determined that roughly the  
13 projects -- 100 to 120 projects are on that list  
14 a year. And as projects get completed, new ones  
15 come on, as you can imagine. But the cost of  
16 doing these projects is around \$100- \$120  
17 million, so -- with the state match. So what the  
18 state has done, we've gotten to the point where  
19 we understood, we want to prioritize the  
20 projects, based on the science and the economics,  
21 so that member projects don't take priority if  
22 they're in one area or another, and someone's a

1 senate president or someone's Speaker of the  
2 House. They should be based on the economic  
3 impact to the region, as well as the  
4 environmental impact and the science.

5 So we've gotten to the point where we  
6 have a \$30 million recurring of that fifty. This  
7 year we were real hopeful we'd get to the 50, and  
8 the Senate was ready to do it, and the House  
9 would have even, but we had the tragedy in  
10 Parkland, so.

11 This is an effort that I think we all  
12 work together on. And one of the great things --  
13 as you see that picture, that's just our beach,  
14 but we went to Tallahassee with the Florida  
15 Association of Counties group of members from all  
16 around the coast of Florida, so from Pensacola  
17 all the way up to Jacksonville and around through  
18 the Keys.

19 And what we found out, and what was  
20 very important, is one of the things that really  
21 makes an impact is if the group that you send to  
22 do your advocacy. And I found this after doing

1 an excellent conference in Hampton Beach, New  
2 Hampshire. Unfortunately, it was late January,  
3 but -- so the amusement park wasn't open. But  
4 that particular get together, that symposium was  
5 specifically designed to be a very bipartisan  
6 group. It was supposed -- it was also a very  
7 diverse group from cities, counties, and state  
8 legislatures. And, you know, it included  
9 everyone from the Mayor of Hoboken, who dealt  
10 with all the issued from Superstorm Sandy, to a  
11 mayor from the Gulf Coast, where Mississippi  
12 sustained some major damage from Katrina.

13 So one of the things that was  
14 interesting, is all right, let's get everybody  
15 together and get it on the table. What is the  
16 key issue? Some of it came down to really, just  
17 the what we're calling it, how we're dealing with  
18 it. And I think we're past that; I certainly  
19 hope so, in Florida. One of the things that has  
20 been able to get us to that point is that we  
21 finally have federal partners and federal elected  
22 officials -- one from this region here -- on both

1 sides of the aisle.

2           And one of the things that I'm proud  
3 of our delegation from the entire state is with  
4 their Climate Caucus. They have to bring people  
5 from both sides of the issue, because if we're  
6 going to fund these projects, I think it's most  
7 important that folks understand that, all right,  
8 well we have the data, it's scientific. It's not  
9 -- it didn't come from one news source or  
10 another. It's scientific data, we're going to  
11 implement it and we're going to put it in models.

12           As Jim said, and as Samantha -- as  
13 Dr. Danchuk put together, it's a whole lot  
14 easier to convince somebody on an investment  
15 level if they're going to develop a property, or  
16 redevelop a property, that this is going to be  
17 what the situation is in 20 years, or 40 years.

18           And one, you know, one of the things I  
19 thought was interesting, kind of on a local  
20 level, I have a -- I had a client, or a good  
21 friend that asked me -- I have a background being  
22 in power generation -- he said, let's put a

1 generator in my house. It was after the --  
2 Hurricane after Irma. And he lives -- they live  
3 in a place called Idlewild, which is right where  
4 those maps were, up -- that was in the dark  
5 purple area, that right now with King Tides and  
6 not the best stormwater infrastructure floods,  
7 and they get a foot, foot and a half of water.  
8 Literally, when there is no storm, it's just the  
9 timing, and we've actually sat in it. So during  
10 the storm, water in this particular case got  
11 right up to the top level of the front door.

12 So as this person's saying, well I'd  
13 like to put it right here. I said, well, you  
14 need to raise your pool pump, you need to raise  
15 your heat pump, and you need to raise both your  
16 air-conditioning compressors, and then the  
17 generator needs to be a foot and a half off the  
18 ground.

19 He said, why is that? I said, well,  
20 doesn't it make sense if you're going to make  
21 this investment that once you have flooding, or  
22 once you have sea level rise, or a bad storm, it

1 doesn't matter if you have all this equipment,  
2 kind of like the pumps in Miami, if there's no --  
3 if they're underwater as well, a generator's not  
4 going to work, it's mechanical. And to the point  
5 of the pumps that I noticed, one of the things  
6 that always needs to be maintained, whether it's  
7 cell towers, pumps, or gas stations after a storm  
8 with petroleum from Port Everglades is we need to  
9 have power to be able to pump it.

10           So one of the things we -- one of the  
11 things I would -- I would end on this. Storms  
12 are an awful event to have to go through. As the  
13 doctor said from NOAA, plan for it, don't listen  
14 to rumors, all those things. But one of the most  
15 important things we need to learn -- we need to  
16 take these as opportunities to learn from them.  
17 And I will end by saying, I am very happy to hear  
18 that the South Atlantic Division Resiliency Study  
19 is being done. I know that after -- it was 2012,  
20 I believe, that the North American was done, and  
21 we will have this information, it's very  
22 important for us. But our goal is to learn from

1 these events and work with our federal agencies.

2 So I want to thank you for having me  
3 here, and certainly ready to take any questions  
4 at that point.

5 MEMBER ATKINSON: And thanks to the  
6 whole panel, those were great presentations. I'm  
7 going to go straight to questions, I think we  
8 probably have some. There was a lot of talk of -  
9 - I won't say any more. Let's start with David.

10 MEMBER MAUNE: Okay, thank you. I'm  
11 curious to know, some of you mentioned lidar; I'm  
12 curious to know who of you use lidar, what you  
13 use it for, and what benefits you receive from  
14 it.

15 DR. DANCHUK: Sorry. So, we use lidar  
16 in just about every study that we're doing. So  
17 you heard Dave mention that, for the critical  
18 infrastructure work that they are doing, even  
19 though they're working with, you know, the  
20 Department of Homeland Security, it's very  
21 relevant to understand what level their  
22 structures are at.

1           With the Army Corps of Engineers,  
2 we're using it for surge modeling. We have a new  
3 data set that's hopefully going to be ready in  
4 another month or so, that the Department of  
5 Transportation from Florida is collecting for us,  
6 just for a small study area, to test out some  
7 very high-resolution lidar. Actually, two  
8 different methods that will hopefully get us even  
9 more refined data so that we can see, like, the  
10 caps of the sea walls, you know, those types of  
11 really -- you know, very small structures that  
12 we're going to have to make major investments to  
13 adapt.

14           But obviously, we use the lidar data  
15 sets that are available from the federal  
16 government, which usually has been NOAA. The  
17 Army Corps also collects lidar data, which we use  
18 for the beach projects design and post-storm  
19 assessments.

20           HON. JACOBS: I would just add that  
21 the entire coastline of Broward County was  
22 divided into three phases, and lidar map is a

1 part of the adaptation action area designation,  
2 so to understand what our vulnerability is and to  
3 begin to prioritize around that issue. We first  
4 did it in the north and then found the funding  
5 through -- I think it was a partnership with NOAA  
6 -- then we did the north section, and then the  
7 central, and then the -- finally the south, and  
8 that's Broward.

9 MR. MURLEY: Okay. We'd be remiss if  
10 we didn't also mention that to our west is -- for  
11 all the counties -- is a very large environmental  
12 restoration project, which we call the Everglades  
13 Restoration, which is in a Water Resources  
14 Development Act of 2000. And it's multi-year,  
15 very expensive, and they have a very extensive  
16 use of lidar data there.

17 They didn't really look at sea level  
18 rise in 2000 when some of the original studies  
19 were done, but I think the Academy of Sciences  
20 brought it to their attention a couple of years  
21 ago. So now you see a lot more information from  
22 that joint federal-state exercise.

1 DR. DANCHUK: We're very anxious to  
2 have another comprehensive lidar data set, you  
3 know, for Southeast Florida, because the one  
4 we're using is from 2007, so there have  
5 absolutely been changes, significant changes to  
6 the environment that we would want to recognize.

7 MR. EDWING: Hi, Rich Edwing with  
8 NOAA. I just have a specific question for Dr.  
9 Danchuk, and then a more general question, I  
10 think, for everybody.

11 On your last slide at the very bottom,  
12 your last bullet, you said you needed data more  
13 quickly. Can you be a little more specific about  
14 what kind of data you're looking for?

15 DR. DANCHUK: So my perspective is  
16 that there are federal agencies, and possibly  
17 even state agencies, that are collecting the same  
18 data that we are, post-storm. It's very  
19 expensive for us to have to go our immediately  
20 after the storm and do the beach survey, so if we  
21 could get the data that you're collecting,  
22 whether it's satellite images, whether it's

1       lidar, whether it's bathymetry, as quickly as  
2       possible, you know, as soon as it's processed,  
3       that would be incredibly helpful, because then we  
4       don't have to duplicate efforts.

5                   MR. EDWING:   Okay, thank you.   So I  
6       think the more general question is, is there a  
7       lack of a particular type of data or information  
8       that stands out above the rest that would really  
9       help you all with what you're trying to achieve?

10                   HON. JACOBS:   You know, I would just  
11       address something in general from a statewide  
12       perspective, and that is that we're very  
13       fortunate here in Southeast Florida to have four  
14       counties that are united with one voice, that  
15       have come together with a regional action plan.

16                   It started with 110 specific  
17       recommendations, and then grew into this plan and  
18       then got re-adopted.   And it's really fantastic.  
19       There's so many PhDs here that they are like  
20       grains of sand in Southeast Florida.

21                   However, you have areas all around the  
22       state that are lucky to have anybody in their

1 staff that even approaches that status or that  
2 level of expertise. And so how do they -- where  
3 do they find that expertise? They're not exactly  
4 getting it from the state, either. So the  
5 federal government was so instrumental, NOAA, the  
6 Corps, in the success of the southeast region, by  
7 virtue of the Compact, is to understand how we  
8 can help NOAA, how can we either come together in  
9 similar compacts being created around the state  
10 to leverage the efforts that you have.

11 Because certainly NOAA and the other  
12 partners cannot come to every single city, but  
13 those cities are just lost right now. And so  
14 helping us come -- I would really enjoy a  
15 conversation or a workshop where we really drill  
16 down on how do we strengthen these partnerships,  
17 how we re -- or emulate what's happened here in  
18 Southeast Florida. There are fledgling -- there  
19 are seven of these that are in process right now,  
20 that I worked on through the League of Cities for  
21 the last 2 years. But they need to be bumped up  
22 to the next level.

1           So when we look at what would help  
2 NOAA and what NOAA could get back from us, I  
3 think we need to be more unified. We need to  
4 better do what's already being done in Southeast  
5 Florida.

6           MEMBER ATKINSON: Joyce?

7           CHAIR MILLER: First of all, I'd like  
8 to thank you all very much for coming. All I can  
9 say about the data you've presented is, wow. And  
10 I come from Hawaii, and we don't quite have our  
11 act together like you do. And sea level rise for  
12 us is a big issue, but so are tropical storms, et  
13 cetera.

14           I wanted to drill down on something  
15 with Mr. Reynes. You said that, you know, the  
16 data is available on a website; I used to work  
17 for NOAA in the coral program, and we mapped the  
18 coral areas in the Pacific that are U.S.  
19 territory. And at one point, we had to run our  
20 own website, because we couldn't get our data out  
21 fast enough, and we didn't have the problem of it  
22 being inundated by people.

1           So I wanted to know -- you gave us the  
2 website. During events, is that website  
3 overwhelmed? I mean, can you get into it when  
4 you need it? Because I've experienced things  
5 where you just absolutely can't handle the --

6           MR. REYNES: Yes. I would say that  
7 the main obstacle we had was when the Weather  
8 Service took the individual websites and  
9 centralized them, so it became sort of a regional  
10 pool of web management for the rest of the  
11 weather services.

12           I would say that these past two  
13 hurricanes -- Irma and Matthew in 2016 -- the  
14 website got much better. The only one that had  
15 problems was the Hurricane Center, which is the  
16 one that most people go into to look for  
17 information.

18           But it is my understanding that the  
19 band-width -- those band-width issues were  
20 addressed last year, and hopefully this year,  
21 we're not going to have any kind of issues with  
22 the website. I think, for this year, they kind

1 of like revisited the capacity. And I'm not  
2 going to say that I'm 100 percent confident it's  
3 not going to happen, but I think we will have a  
4 much better band width available for this  
5 upcoming hurricane season specifically.

6 CHAIR MILLER: Okay, that's good. I  
7 mean, one of the issues the I've seen over the  
8 years is, there are so many websites; not just  
9 NOAA, but across the government, where you can  
10 get information. I think one problem is that  
11 knowing where to go and where to get the data you  
12 need is -- bathymetric data is -- there's  
13 probably 10, 20 websites where you can pick up  
14 data.

15 MR. REYNES: Right.

16 CHAIR MILLER: So I just think it's an  
17 overall concern, is getting the information out,  
18 and people knowing where to go.

19 MR. REYNES: Yes. The important thing  
20 is keeping in mind weather.gov, because that's  
21 kind of like the centralized umbrella for  
22 everything. And unfortunately, there are several

1 -- a lot of companies that they use the word  
2 weather too, like weather.com is not the same.  
3 That's somebody else. So it's -- the first thing  
4 to keep in mind is to make sure information comes  
5 from weather.gov.

6 MEMBER ATKINSON: More questions,  
7 comments? Go ahead, Andy.

8 CAPT ARMSTRONG: I'm Andy Armstrong  
9 from NOAA's Joint Hydrographic Center up in sunny  
10 New Hampshire. I have a question for Dr.  
11 Danchuk. You mentioned some of the needs you  
12 had, and it included nearshore currents,  
13 Intracoastal bathymetry, and anticipated scouring  
14 projections.

15 So if I could ask you about the  
16 nearshore currents, are you talking about  
17 longshore currents, or are you talking about  
18 currents in a particular inlet? Maybe you could  
19 elaborate a little bit on that.

20 DR. DANCHUK: So longshore currents  
21 would be very helpful with understanding how to  
22 manage our sediment. We have a sand bypass

1 project that is going in at Port Everglades, so  
2 we can capture sands in the north and move it to  
3 the eroded beaches on the south.

4 We have snapshots of currents from  
5 some of the modeling work that has been done  
6 recently in an effort to deepen the port and  
7 prepare for that permitting process. But if we  
8 could real-time monitor, we could have a better  
9 understanding of how things change during a  
10 storm. We would be able to validate some of  
11 those models, which has never been done.

12 Like I said, we'll put temporary, very  
13 temporary -- I'm talking about, like, days -- to  
14 get some current measurements in order to  
15 validate a model, but we know already -- we've  
16 had some permitting issues that have identified  
17 that we have a very ephemeral reef system that  
18 essentially gets covered by sand and uncovered,  
19 and that is just part of the natural process.

20 It would be incredibly helpful to be  
21 able to understand that, especially as we know  
22 our reefs are under even more pressure, not just

1 from climate change, but from additional  
2 population pressure.

3 We need to figure out how to address  
4 those issues, and monitoring the currents would  
5 be the first step towards that. So yes, in the  
6 vicinity of Port Everglades would be incredibly  
7 helpful. Miami has a radar system that's right  
8 near the port that helps them at least capture in  
9 Biscayne Bay what some of the currents and wave  
10 heights are there. But yes, that's part of it.  
11 And then also further offshore, we very much  
12 would like to understand the speed changes of the  
13 Gulf Stream.

14 CAPT ARMSTRONG: Thanks, and if I  
15 could just follow up and ask a similar question  
16 about the Intracoastal bathymetry. So is that  
17 just in the middle, or are you looking for the  
18 whole profile all the way to the beach? What's  
19 the need for bathymetry in the Intracoastal?

20 DR. DANCHUK: As we've all noted,  
21 within the compact region, there are major  
22 adaptation projects and resilience planning

1 efforts ongoing that focus on the Intracoastal.  
2 We know that we are trying to do some flood risk  
3 assessment that we hope will become a part of the  
4 federal project.

5 A lot of the data sets in the  
6 Intracoastal, further away from the inlet, are  
7 very, very old, and we know that there have been  
8 changes. It used to be that a canal didn't  
9 change, so why survey it frequently? But we know  
10 that there have been changes; there are dredging  
11 projects that go on in the Intracoastal, whether  
12 it's privately or part of a federal project,  
13 ongoing.

14 So we know that we need those data  
15 sets. There are many times that we have canals  
16 that we are just making assumptions on. We're  
17 just setting a single elevation for the entire  
18 canal, and then we're spending all this time to  
19 try and refine the sea wall cap to figure out how  
20 it's going to float over. But really we don't  
21 have a good assessment of what the bathymetry is.

22 And as you try to propagate waves or

1 surge into those canals, I mean really you're  
2 missing out on what the real effects are on that  
3 local level. So having better bathymetry would  
4 be incredibly helpful.

5 MEMBER ATKINSON: David Maune?

6 MEMBER MAUNE: Dave Maune again. Dr.  
7 Danchuk, this question is probably for you. NOAA  
8 and the U.S. Geological Survey are embarking on a  
9 study this year called the 3D Nation: Elevation  
10 Requirements and Benefits Study. I don't know if  
11 you've heard of it.

12 But one of the goals of the study is  
13 to evaluate, nationwide, requirements for  
14 elevation data for the topographic service,  
15 inland bathymetry, nearshore bathymetry, and  
16 offshore bathymetry, and to determine what the  
17 requirements are in terms of accuracy, point  
18 density, and update frequency.

19 I think you mentioned about your data  
20 being old, and one of the questions is going to  
21 be, how frequently do these data sets need to be  
22 updated? And I don't know if you're

1 participating in that study; I hope you are,  
2 because you seem to have a good grasp on how  
3 lidar data are used. But it's not just lidar,  
4 it's sonar as well.

5 And I don't know if you've heard about  
6 it, but I hope that you will be able to  
7 participate in that study.

8 DR. DANCHUK: I have not, but we would  
9 love the invitation. We can't emphasize enough,  
10 you know, when you invite the Compact, the  
11 benefit goes not to just one community, but  
12 across the whole region. Others are always  
13 looking towards us to share those examples, so we  
14 would love to participate in something like that.

15 I don't have a recommendation per se  
16 on how frequently the data -- but things are  
17 changing so quickly here. There's going to be --  
18 for the next 10 years, there's going to be so  
19 much adaptation going on, and changes with the  
20 deepening projects, so as frequently as we can  
21 get it, until we can get to the point where we  
22 can go back to the decadal collection, would

1 probably make sense.

2 MEMBER MAUNE: Yes, and the hardest  
3 part of the whole process is that you will be  
4 asked to determine what dollar benefits you  
5 receive, if you get what you ask for, because  
6 it's those dollar benefits that drive programs  
7 that say, In order to get this return on  
8 investment, you can invest so much in these  
9 different technologies.

10 And so that's the hard part, when  
11 people say, I've got all these requirements, but  
12 I don't know how to document what the benefits  
13 are, that makes it very difficult to do something  
14 with the information. But if you put your  
15 thinking cap on and say, how can we translate  
16 these requirements into benefits so that we can  
17 find some way of competing a return on  
18 investment, what's the economic value of our  
19 getting this data? It would be very beneficial.

20 DR. DANCHUK: We would love the chance  
21 to do that. We're actually very good at that.

22 MR. MURLEY: I'm not a scientist, but

1 as a lawyer, I'll tell you, on the insurance side  
2 of the equation -- which is really important to  
3 us, and we've done a lot as a state on wind --  
4 but we find ourselves in the morass of the  
5 federal flood insurance program. And we don't  
6 trust it.

7 So that kind of data would really be  
8 helpful, because insurance is one of the huge  
9 signals that comes -- that is a partnership with  
10 us in the private sector.

11 MEMBER ATKINSON: Any other comments?  
12 I was just going to say, we've got a few more  
13 minutes, and this is a chance for you to actually  
14 provide comment to the Advisory Committee on  
15 things you would like us to tell NOAA. You want  
16 to start? Just if you have a few words about  
17 what you'd like NOAA to do for you, or --

18 HON. LAMARCA: So unless it's changed,  
19 the National Fisheries is under NOAA, right?

20 MEMBER ATKINSON: Yes.

21 PARTICIPANT: Not us, though.

22 HON. LAMARCA: Not you? Understood,

1 and this is not a criticism, other than to say  
2 that was one of the long, extended impediments to  
3 permitting a beach project after we had done  
4 everything that we needed to do. Again, as I  
5 talked to residents in the community, they asked  
6 me why it was taking so long?

7 I said, Well, we had to get a permit.  
8 It's kind of like after the hurricane, when you  
9 had to get a permit to replace your roof and take  
10 the blue tarp off your house; can you imagine if  
11 it would take you 19 years?

12 So, again, that was at the end of the  
13 process, but if it's a resource issue or an  
14 appropriation issue, I'm not sure; but that was  
15 one of the really frustrating parts of that  
16 process. Again, I know it's not this part of  
17 NOAA, but I do want to make sure that that's an  
18 area that if you could -- if you wanted folks  
19 around the communities to work with your agencies  
20 at the federal level, to advocate, we'd love to  
21 advocate for that, if that's something that can  
22 be solidified a little bit better.

1                   MR. ANDERTON: So, I'm going to go  
2 back to the data. I think the port would very  
3 interested, just like Samantha, in having, if we  
4 could, real-time data near the inlet and even  
5 beyond the inlet, related to currents, et cetera.

6                   I think we just recently worked with  
7 NOAA to get the tide gauge, which is a very  
8 positive thing for the port, you know, given our  
9 current depth of the outer entrance channel and  
10 the depth of our inner entrance channel. There's  
11 many times where the pilots are doing tide jobs,  
12 and the tide is not that great at Port  
13 Everglades. It's very minimal; it's not like the  
14 Northeast or other places where you have 6, 7, 8  
15 feet; you're talking a couple of feet. So that  
16 real time data is very important for the port,  
17 for the pilots, especially from a safety  
18 perspective.

19                   MR. MURLEY: I recently had the honor  
20 of being asked to serve on the Board of SECOORA,  
21 which you probably know the acronym, so I won't  
22 stumble through it. I find the regional

1 approach, having been a federal employee working  
2 at NOAA decades ago, I think the evolution of  
3 that way of dealing with services and dealing  
4 with partnerships has really been positive.

5 One of the most positive things for  
6 Florida is that SECOORA is one of the few federal  
7 programs that doesn't split us in two. We're  
8 always on the South Atlantic region of somebody,  
9 and the Gulf region of somebody else, and SECOORA  
10 goes all the way around. So it brings everybody  
11 together. It's a strong program, it builds on  
12 our partnerships with universities. Dr. Dodge is  
13 a partner from NOVA, and also with the CZM  
14 programs, which are strong in the states.

15 DR. DANCHUK: I'll just say thank you  
16 for all the data products that we so heavily rely  
17 on. It's very easy for us to demonstrate the  
18 economic benefits, because they are used in ways  
19 you can't even imagine.

20 But I think my request would be to  
21 continue to support the technical assistance. As  
22 you mentioned, now we're starting to collect

1 really high-density lidar data, and as  
2 Congresswoman Jacobs mentioned, we have an  
3 incredible amount of expertise in-house, but  
4 starting to be able to use tools to really be  
5 able to appropriately use that data -- we could  
6 use technical assistance with that. We're about  
7 at the point of hitting our limit.

8 Right, it's no longer simple to take  
9 those huge data sets and break them down into  
10 something that we can use, and NOAA has a great  
11 reputation for being able to provide workshops  
12 and technical assistance to kind of bring us to  
13 the cutting edge. So we would appreciate that.

14 MR. REYNES: Again, I want to say a  
15 big thank you for the invitation and for your  
16 patience, listening to our input. I just want to  
17 touch again on something we mentioned. We have  
18 basically a complete void when it comes to  
19 offshore data, because there are no -- we have no  
20 NOAA buoys here in Southeast Florida.

21 Before coming to Miami, I worked for  
22 almost 5 years in Hawaii, of all places, and in

1 Hawaii there are at least five offshore buoys  
2 surrounding the islands. Before that, I worked  
3 in Tampa. There are two buoys there. So imagine  
4 my surprise when I came here and found out that  
5 there are no NOAA buoys in our offshore domain  
6 waters.

7 It's very important, not only because  
8 it helps to fine-tune the model data, which is  
9 crucial for the forecast, but it also gives us  
10 lead time to adjust the short-term forecast in  
11 terms of wave height, potential impacts on the  
12 nearshore time frame and the nearshore spatial  
13 resolution.

14 So I would say that my only request,  
15 if there's anyone here who can point us in the  
16 right direction of how we can make it clear that  
17 we need buoy data; not only nearshore, but also  
18 offshore, because it's a crucial component of  
19 both modeling for the future, and for the short-  
20 term issuance of warnings or verification when we  
21 have big events or are expecting hazardous surf  
22 or hazardous waves, especially in a place like

1 Southeast Florida, that is so easy for our  
2 shorelines to be battered and sustain significant  
3 damage from big wave events and hurricanes.

4 RDML SMITH: Can you get just a bit  
5 more specific on the buoy? There are a lot of  
6 sensors you can put on a buoy; I think you're  
7 talking about waves, specifically here. Is that  
8 right?

9 MR. REYNES: Yes, wave height,  
10 periodicity to learn the size of the waves,  
11 that's crucial -- and wind, just the three basic  
12 components of buoy data, which are wind, wave  
13 height, and periodicity.

14 MEMBER ATKINSON: I think this whole  
15 thing is going to be a topic for a sub-group.

16 MEMBER THOMAS: Can I just say --  
17 Tony, we just deployed a wave buoy off of Key  
18 West, off Pine Key three days ago. So that's a  
19 very high-resolution wave buoy; it's like Fort  
20 Pierce and Pulley Ridge. It's like the five  
21 around Hawaii, by the way, except for the one  
22 NOAA buoy.

1           Those are actually funded by the Army  
2 Corps in partnership with NOAA. It does not have  
3 met data, because it's very focused on waves.  
4 And we couldn't put it off Miami, because you've  
5 got that Gulf Stream there, and they don't do  
6 well before a strong current.

7           MR. REYNES: Right.

8           MEMBER THOMAS: So if you can find a  
9 place around here that we can get out of the Gulf  
10 Stream, we can possibly talk to the Corps about  
11 getting one offshore.

12          MR. REYNES: Fantastic. Yes, there's  
13 a whole group in the tropical analysis prediction  
14 branch of the hurricane center, the TAP-B, they  
15 cooperate with us. They have a proposal with  
16 SECOORA -- I don't know if you've --

17          MEMBER THOMAS: Right. Actually, I  
18 work real closely with Deborah, and I know she's  
19 getting one more wave buoy right now in the  
20 system. We're working on that; it'll be the same  
21 type. Once again, we have to find a place to  
22 deploy where we can't get in the Gulf Stream,

1 because it will just pull it right under there.

2 MR. REYNES: Yes, certainly we don't  
3 want it in the Gulf Stream because of the  
4 problems. But having it upstream from the Gulf  
5 would be extremely --

6 MEMBER THOMAS: So we should talk  
7 about locations, and if you're working with  
8 Deborah, that's great. I communicate with  
9 Deborah a lot on it, so maybe we can follow up  
10 later.

11 MR. REYNES: Great.

12 MEMBER THOMAS: Like I said, these are  
13 just waves, they're not the ones that have met  
14 data on it -- those are really the NOAA buoys --  
15 but maybe they can help you out in the meantime.

16 MR. REYNES: Fantastic, thank you.

17 MEMBER ATKINSON: Okay.

18 HON. JACOBS: And I'm going to be kind  
19 of a broken record on speaking with one voice.  
20 I've been operating from this for 20 years in  
21 public office, and at the very base of the  
22 success, the foundation of the Climate Compact

1 here in Southeast Florida is that we started to  
2 talk to one another, and we took a practical and  
3 pragmatic approach to dealing with the issues  
4 that we were facing that were non-political.

5           There were a lot of voices trying to  
6 push us in that direction. I know as agencies,  
7 you tend to look at the science and do the work,  
8 but the real elephant in the room is the  
9 partisanship that is out there that can drive  
10 people away from the table, so you don't get to  
11 the change that you need.

12           The one connecting factor across both  
13 parties is the issue -- and I think Dave talked  
14 about this -- is return on investment. I am  
15 ranking member of the agriculture and natural  
16 resources committee, and I see bills as they come  
17 through policy and then through for financing,  
18 and then they go through the final government  
19 approval commitment before they hit the floor.

20           So I'm in a unique position to see a  
21 bill four times along with the appropriations and  
22 be able of vote on them. So one of the things

1 I'm continually asking for is, Did you come to  
2 the table with more than your appetite? What  
3 dollars are you bringing to the table?

4 And what you hear from a lot of  
5 communities throughout the state that have  
6 crumbling infrastructure and huge need is, they  
7 simply don't have the funds. We actually had a  
8 project recently that was a 99-year-old, clay  
9 pipe system that had crumbled to the point that  
10 the junctures where the pipe sections met had  
11 disappeared. Sections of it had actually  
12 crumbled and were going away.

13 They had no matching dollars, and when  
14 I said to them, We have a big budget here -- in  
15 that day, 130 water projects in front of our  
16 committee in one 3-hour period -- what are you  
17 going to do if you don't get funded?

18 And they said, Well, we'll just have  
19 to come back next year. So they had sewer water  
20 leaking, they had potable water that's being  
21 wasted, and they have no plans.

22 So what is the incentive for a state

1 to get these communities -- 412 cities, 67  
2 counties, and untold numbers of utilities -- all  
3 to start moving in the right direction?

4 One of those things is to foster unity  
5 and to foster miniature compacts. I think that  
6 for NOAA and other federal agencies, we need your  
7 technical expertise. These small communities do,  
8 but we can't ask you for it unless we take that  
9 first step, come to the table with more than an  
10 appetite to get ourselves unified.

11 But we need to know that when we do,  
12 that there is some sort of return on investment  
13 when funds are given out. So as a state, what I  
14 am working towards is that whenever we give  
15 dollars to communities, we're going to be asking,  
16 Are you working regionally? Are you looking  
17 beyond your current needs? Are you looking at  
18 future conditions, and not just the future  
19 conditions for your needs and your utility, but  
20 what about your neighbors'?

21 Because when your neighbors' systems  
22 fail or are inundated by salt water, and now

1 they're coming to you for a potable water supply,  
2 that's something that you may need to think  
3 about, and you probably don't have the expertise  
4 to do that. But you would if you came together  
5 as a group.

6 So the issues are myriad, and I know  
7 that if we start asking the question, Are you  
8 acting regionally or mega-regionally, or  
9 certainly multiple cities within a county -- if  
10 we're asking that question in order for you to  
11 get funded, you know that to move to the front of  
12 that line, these are boxes we're all going to be  
13 wanting to be checking.

14 So to the degree to which you all are  
15 giving dollars away through grants, or looking at  
16 the merits of a program, is to start also asking  
17 that question, which helps us drive or underscore  
18 the point that regionalism and connecting  
19 together, speaking with one voice, assessing your  
20 regional vulnerability, and prioritizing what  
21 those needs are, are only going to make those  
22 communities stronger and make us better able to

1 ask for, and you to give, dollars and technical  
2 expertise to a region.

3           There aren't too many efforts around  
4 the state that even come close to where we are in  
5 Southeast Florida, but they are happening. The  
6 Tampa region has begun these conversations. In  
7 Southwest Florida, those conversations have  
8 started, and certainly in Jacksonville, as a  
9 result of Irma and all of their multiple  
10 failings. They are also having the conversation,  
11 as well as other areas in the central-eastern  
12 side of the state.

13           So it's happening, it's fledgling;  
14 it's one of those issues that gets me out of bed  
15 in the morning to continue to create these  
16 things. And I'm not sure which of you can help  
17 me in that regard, but I would be very interested  
18 in trying to figure out what is an environment  
19 where we could do something like this and bring  
20 these partners together to help them understand  
21 the importance of resiliency and adaptation, and  
22 a foundation of trust built across party lines,

1 across the jurisdictional lines and speak with  
2 one voice and get the resources that we need.

3 MEMBER DUFFY: I was trying to be  
4 quiet, but you inspired me with your comments.  
5 I'll say that this panel really struck me as  
6 excellent. I live in New Orleans, and I think it  
7 was that great environmental scientist, Dr. Mike  
8 Tyson, that said, Everybody has a hurricane plan  
9 until they get punched in the mouth.

10 (Laughter.)

11 MEMBER DUFFY: Of course, we've all  
12 been punched in the mouth, and I think we have to  
13 learn to protect our faces. Some of the things  
14 that I heard about the deepening of the channel  
15 is something we can relate to. I like to come up  
16 with funny little catchy terms, so our beneficial  
17 use project we call Sediment Recycling.

18 So we're looking at restoring the  
19 coast. Our deepening project, if it ever does  
20 move forward, would create about 1,500 acres of  
21 land in the lower river. Hopefully some of the  
22 lessons we've learned will help maintain that

1 acreage.

2 I wanted to thank the panel; I thought  
3 you did an excellent job, and I made a lot of  
4 notes. I really appreciate your time.

5 I think in porous soil -- we have  
6 porous soil, but we don't have anything  
7 resembling a rock. So it's a little different,  
8 just amazing, a couple of states over, the  
9 differences in the geology that make some of the  
10 lessons similar and some quite different. Thank  
11 you.

12 MEMBER ATKINSON: I'm going to thank  
13 the panel one more time for great presentations,  
14 thank you.

15 (Applause.)

16 MEMBER ATKINSON: Now I'll turn it  
17 over to Joyce.

18 CHAIR MILLER: We have time for  
19 discussion, but first of all, we are scheduled  
20 for a public comment period, and we do have one  
21 comment from the audience. He's with the  
22 National Weather Service, so can we have that

1 public comment first?

2 MR. DELLINGER: Good morning. I'm  
3 with the VOS Program. I know that some of you  
4 have identified the need for offshore weather  
5 observations, buoy reports. Some of our local  
6 coastal forecast offices do run a VOS report.

7 Every time a ship passes by their  
8 station -- for example, Key West -- they have a  
9 box that's outlined in one of their coastal  
10 zones, and every time a VOS ship goes by that  
11 point, they broadcast that ship observation.

12 Some of the observations are fairly  
13 high quality. Maybe the wave height, the  
14 viewpoint is a little bit different, probably  
15 less of a quality than you would get from a buoy,  
16 but it's a way to validate an observation or a  
17 forecast.

18 Some of our other forecast offices are  
19 going to start doing that; I know Miami has a  
20 plan to do a couple of different locations along  
21 their coastline. The only limiting factor is the  
22 observational accuracy, the location, is a little

1 bit broad right now because we only record ship  
2 observations in degrees and minutes. So it kind  
3 of gives you a 36-nautical-mile square box; that  
4 ship can be anywhere in that box.

5 But in the coming future, we're going  
6 to increase the resolution to within 30 meters,  
7 so in the not too distant future, you can use  
8 those ship reports as a climatological study.

9 And to foster that, we've actually  
10 designated some ships as VOSCLIM, so the metadata  
11 that's collected from those ships is of such high  
12 quality, and the quality of observations from  
13 those ships, we QC on a very regular basis, we've  
14 determined that those ships meet the standards  
15 for climate research.

16 So when they pass a point that you're  
17 interested in, you can collect the current, real  
18 time, and historical data from NDBC and from  
19 NOAA.

20 CAPT. BRENNAN: Tell them what VOS  
21 means?

22 Mr. DELLINGER: VOS is the Voluntary

1 Observing Ship program. We go out and recruit  
2 large commercial vessels and some private  
3 vessels, offshore production platforms, and they  
4 produce high-quality weather observations and a  
5 little bit of oceanography as well -- sea surface  
6 temperature, wave height, direction, swells --  
7 things that are probably germane to what you all  
8 are doing on a daily basis.

9           There are 14 or 15 different PMOs  
10 along the U.S. coastline; we're in all the major  
11 ports. So if you had some research questions or  
12 you had a specific area you were looking for to  
13 get more data, you can always contact us, either  
14 at the local level or at the international VOS  
15 level, and we'll be glad to help you out with  
16 that.

17           There are some climate things that we  
18 are doing in order to help with the climate  
19 change research.

20           Oh, yes, my name is David Dellinger.  
21 I am the South Florida PMO, Port Meteorological  
22 Officer. We break ourselves into regions, so I

1 cover all the ports from Tampa across to Cape  
2 Canaveral, south across to Key West and the  
3 Caribbean.

4 Almost every major port has a PMO;  
5 Charleston, New York, Baltimore, Houston, the  
6 Mississippi Delta area, and then also along the  
7 West Coast. We even have a PMO in the Great  
8 Lakes. So if you had a concern or a climate  
9 issue that you wanted to resolve in the Great  
10 Lakes area, we have a great network of about 850  
11 ships in the U.S. and about 4,000 ships through  
12 the WMO programs for VOSCLIM.

13 So we are a resource, and if there is  
14 something that you needed help with gathering  
15 data in a particular region or area, we can  
16 recruit ships to take observations in high-  
17 density areas that you're looking to get  
18 information from. So we can get hourly  
19 information from some ships if that's something  
20 you're really looking for in the future. That's  
21 all I have.

22 CHAIR MILLER: One suggestion: I

1 cruised in this area for 4 years, and there's a  
2 lot of bored boaters out there, I kid you not.  
3 And there's a whole weather reporting network  
4 that boaters sign in to. I'm a geologist, and I  
5 suddenly became the meteorological expert,  
6 because I had a good single side band signal.

7 But they report in on wind and wave  
8 conditions, and a lot of them have pretty  
9 sophisticated electronic collection systems now.  
10 It might be a resource that you could use, if the  
11 small boaters would be trusted sources.

12 MR. DELLINGER: There is a partnership  
13 -- the name escapes me right now, but there are  
14 sail classes of ships that do circuitous routes.  
15 They do it as groups, and we do recruit them not  
16 only to take weather observations, but also to  
17 launch ocean research buoys, especially along the  
18 Central Pacific, the South Atlantic. Whenever we  
19 find a group that's doing that, we'll get them to  
20 launch drifter buoys for us.

21 They do thermal sampling, salt  
22 sampling; there is a public-private partnership

1 that has kind of been at the wayside for the last  
2 4 or 5 years, just mainly due to lack of funding  
3 on the VOS side. But NOAA and the National  
4 Weather Service are starting to make a re-  
5 investment into that. So once we get the major  
6 shipping industry more on a stable basis, we're  
7 going to start utilizing the large sail boats and  
8 large private yachts for more information.

9 CHAIR MILLER: Are there other public  
10 comments at this time? Do you have anything from  
11 the webinar? Okay, time-wise, it's 10 after. We  
12 have 20 minutes, and we could continue the  
13 discussion during lunch if we need to, on the  
14 future for the technology committee.

15 MEMBER GEE: Yes, for the Technology  
16 Work Group, I think we got to where we are going  
17 forward. There were two issues, one where we're  
18 going forward with the group, and also the letter  
19 we have from the Science Board and talking about  
20 that.

21 So up until now, I think with the tech  
22 working group from the meeting last year, we were

1 trying to do it every month, but that didn't  
2 work. Then there were too many meetings with the  
3 P&E as well. So it's now every second month, bi-  
4 monthly meetings, and really using the public  
5 meeting to review what we've done.

6 So I think that was what we're  
7 proposing, to continue to do at this stage as  
8 well.

9 VICE CHAIR SAADE: Yes, we wanted to  
10 put that in front of the panel, to keep up the  
11 routine of bringing new items two to three times  
12 in between these formal meetings, and then have a  
13 session like this, where everybody gets to do a  
14 data dump, and we can talk about what's been  
15 discovered.

16 So we'll do what we can to keep coming  
17 up with good ideas for the presentations, and we  
18 want to get agreement that everybody's happy with  
19 this format or not.

20 MEMBER LOCKHART: I am happy with the  
21 format, but I have a lot of problems with the way  
22 we do this, in that I have so many meeting

1 invites to HSRP meetings in my calendar, and I  
2 know half of them are fake and half of them are  
3 real, and I don't know which ones I should be  
4 calling in to, and I don't have time to waste  
5 calling in to a fake meeting.

6 I don't know if there's a way to fix  
7 that, if there's a way to actually delete those  
8 that aren't happening anymore, or what's going on  
9 with that. But it really causes me a lot of  
10 strife, to the point where I just don't call in,  
11 because I don't know which ones are real.

12 VICE CHAIR SAADE: Okay. I'm not sure  
13 I --

14 RDML SMITH: I hear you. I recognize  
15 the issue, and I'm trying to look at Liz here,  
16 and Lynne, to work on the issue of scheduling too  
17 many HSRP meetings with too many different  
18 people, many of which are not relevant to them.  
19 Thank you for raising that.

20 CHAIR MILLER: I would also say that  
21 some of the meetings have been canceled because  
22 only two or three people would be coming, and I

1 know everybody's got tight schedules. But if you  
2 can let Lynne know early that you can't come --  
3 when she only had two people and we've got a  
4 speaker scheduled, it doesn't make any sense.

5 So I would encourage everyone to  
6 respond early, yes or no. And then we can know  
7 if that meeting will work.

8 MEMBER HALL: And I have one  
9 suggestion, because when we do get on those,  
10 sometimes it's somebody just talking at us, and I  
11 know that's what they are prepared to do. I  
12 guess my request would be that they be a little  
13 more interactive.

14 I know it's hard when you're calling  
15 in, and who gets to talk next; but we have the  
16 technology. The technology group did a pretty  
17 good job of it, from the couple of times I was  
18 able to call in in the last 6 months. It was  
19 more than just an hour of people talking at you.  
20 That was a previous HSRP administration, where we  
21 would get talked at, but just to continue that  
22 where it's more interactive, we're seeing some

1 slides, there's a concept of what we're actually  
2 going to be doing.

3 I know that it was tough in the  
4 Planning and Engagement Group, because we never  
5 knew what we were going to be dealing with, and  
6 who was going to be on the call, and where NOAA  
7 was on the planning. So just a suggestion that  
8 we have an agenda, and that we do our best not  
9 just to have talking people at us. I appreciate  
10 that, thanks.

11 MEMBER GEE: Yes, we take your point.  
12 I think that was one of our concerns, that you  
13 have a 40-minute presentation and there's no  
14 discussion. So we would like to keep it down to  
15 short enough to allow people to engage with the  
16 subject.

17 I think from when we put our terms of  
18 reference in place, one was to try to look at  
19 interesting things that NOAA was doing, how we  
20 could contribute as a technology group; but also,  
21 I think we saw it as a broader education for our  
22 HSRP panel itself, to share the knowledge from

1 subjects we weren't familiar with, so that when  
2 we get to the public meetings, we had a level of  
3 understanding so we could all have some input  
4 into that.

5 So if we're happy with the format,  
6 moving forward, we'll take note of what you say  
7 regarding that.

8 So to continue, Brianna Sullivan at  
9 CCOM is working on the supplementary data and  
10 things beyond just the charting, such as the  
11 Coast Pilot and all the other bits and pieces  
12 that go there, and how do you use the technology  
13 to spread that word and take it from a written  
14 publication that it's been for a couple hundred  
15 years, to -- a PDF really isn't a change, it's  
16 just a re-publication.

17 So using all of that data and making  
18 it more useful, and that does include standards,  
19 and she's working on that.

20 So that's our proposal for the meeting  
21 in May. I think the invite might have gone back,  
22 but it got withdrawn and put out again. We need

1 to make sure people know when that is.

2 So that's our proposal; we've talked  
3 about Seabed 2030, and it has raised that. It  
4 sounds like it's going to be raised more  
5 generally as a subject with NOAA now, and as an  
6 operational, and we need to be careful in the  
7 technology group, I think we addressed the  
8 technology aspects of 2030.

9 VICE CHAIR SAADE: That would be the  
10 intent; there's plenty of good presentation  
11 material now that is strictly from a technology  
12 side, independent of policy types of things. And  
13 everybody is aware of this whole beginnings of  
14 getting aware of the tie-in to the blue economy  
15 and all.

16 So it seems like a good idea to talk  
17 a little bit more formally about what 2030 is,  
18 and how the process is going to work, then we can  
19 take it from there, relative to what the panel  
20 wants to do with that, or advise, or not get  
21 involved.

22 MEMBER GEE: So then more generally,

1 I had some discussions here and some thoughts  
2 over the last couple of years, and they've all  
3 been basically Coast Survey-focused, all about  
4 technology input. And I was a bit concerned with  
5 that, and briefly discussed with Rich and Juliana  
6 is that any technology issues that you have, that  
7 you think we should be dealing with -- and one  
8 item I think I raised was, we saw you had a visit  
9 up to CCOM at UNH, and there was the success, I  
10 think, that Coast Survey has had from that.

11 So I would ask both of you, where is  
12 your equivalent to the Joint Hydrographic Center  
13 for NGS and for CO-OPS, and is that something  
14 that we should raise? Is it something that would  
15 be worthwhile to you? From a technology point of  
16 view, it's kind of a process that I would see  
17 that's not there. Maybe you don't need it, and  
18 it's just because it's a different organization.  
19 Then you have that internally, or you have  
20 informal relationships with academic research  
21 institutes. But that was just something I'd be  
22 interested to hear from you both.

1                   MR. EDWING:  So thanks, I've had a  
2 chance to think about that and speak with Andy.  
3 I don't really have enough of a requirement, and  
4 I wouldn't see a stand-alone center being needed.  
5 We get a lot of the technology we need from  
6 private industry and academia and other places.  
7 However, there are things that would be helpful.

8                   And I think the better way to go would  
9 be to expand the mission of the Joint Hydro  
10 Center a little bit.  At one point it was kind of  
11 billed as working with all three offices; it just  
12 never really worked out that way.  That's not a  
13 criticism.

14                   But I've had this discussion with  
15 Andy, and he's in full agreement, and I guess the  
16 grant's coming up next year for renewal.  And  
17 that's the time to broaden the scope.  They have  
18 helped us with a few things already, and I think  
19 there's other things that they could help us  
20 with.

21                   But we don't have enough there for a  
22 whole new center.  In fact, we're trying to

1 integrate things, and having separate centers may  
2 not be helpful for that. So I think the real  
3 solution and the most cost-effective solution  
4 would be to broaden the mission and the scope of  
5 the Joint Hydro Center a little bit. I can't  
6 speak for Juliana, but certainly from my  
7 perspective, that would be very helpful for me.

8 MS. BLACKWELL: I'll follow up with  
9 that; this is Juliana. I think you were asking  
10 the question the other day about what is the  
11 equivalent? And no, we do not -- and I agree  
12 with Rich, we don't really need a separate center  
13 for that. But I do think that there are  
14 opportunities with the Joint Hydro Center. We  
15 did have an individual there who was focusing on  
16 some of the remote sensing aspects. We don't  
17 have an employee there at this time.

18 But I do think that there is an  
19 opportunity, especially in the remote sensing  
20 side, to work at JHU, maybe even on the geodesy  
21 side.

22 The bigger picture for geodesy and for

1 us trying to work with academic partners and also  
2 look for recruitments to come and work at NGS,  
3 we've reached out to a number of institutions,  
4 but there isn't just one university. There used  
5 to be The Ohio State University, which was the  
6 place to go. We've been doing some work with  
7 Oregon State University; we've been doing some  
8 work with Ohio State University and others.

9 One of the things that I've been  
10 looking at is the whole cooperative institute  
11 structure within NOAA. We don't have a direct  
12 connection, clearly, with a cooperative institute  
13 that focuses on geodesy/remote sensing, although  
14 there are pieces here and there with the existing  
15 structure as it is now.

16 But I also understand that there's an  
17 opportunity in the future, maybe to re-craft  
18 that. I don't know if that's an HSRP topic or  
19 not, but I think it's at least good conversation  
20 to have amongst the people who are part of the  
21 HSRP, whether or not it's part of the official  
22 agenda or not.

1                   MEMBER GEE: I guess raising that was  
2 just that on the tech working group, we're  
3 feeling guilty that we haven't addressed any of  
4 the things that seem to be appropriate to your  
5 groups. The first question was, Was there  
6 anything for that?

7                   But then, broadening that thought is  
8 like, Well, yes, we're not quite sure. We've  
9 talked a lot about the UNH and the Joint  
10 Hydrographic Center, and it seems like we should  
11 be talking about some of that, because that is  
12 part of our role as the technology group for the  
13 HSRP. We should be addressing the issues you  
14 have.

15                   That's what we were concerned about,  
16 were we doing that, and should we be doing more  
17 for you?

18                   MS. BLACKWELL: If I could just follow  
19 up; I would feel very comfortable with saying  
20 there are some ideas that we have, as they come  
21 up in conversation within NGS or with some of our  
22 partners on some topics. So if we can keep that

1 door open with suggestions that we have you to  
2 consider, I'd feel very comfortable just bringing  
3 that up as things develop.

4 VICE CHAIR SAADE: So the other idea  
5 is some of the information briefings that we've  
6 done, like geodesy and when Carol took the lead  
7 on all things coastal lidar. One of the things  
8 that popped up this week was maybe doing a  
9 session on subsidence, and whether anybody's  
10 interested in that, to talk in more detail about  
11 what's being done with measurement and the  
12 different types of research programs. So we'll  
13 throw that one out to the panel.

14 MEMBER HALL: I think one of the  
15 things that we're going to go through a little  
16 bit later, hopefully when we come back to the  
17 planning and engagement working group, I still  
18 have the list. So that top five is just our top  
19 five. That doesn't mean there aren't another  
20 dozen issues that we are keeping track of. And  
21 I'll make sure that gets put up on the screen, so  
22 the folks know that we're still tracking on

1 those; those are just our top five, where we  
2 wanted to be doing something either at our  
3 meetings, the webinars, or be an issue paper.

4 So I'll make sure we have that, and  
5 then hopefully this afternoon we can add to that,  
6 and that will be part of this survey as we move  
7 forward to re-prioritize our topics of interest.

8 MEMBER GEE: I think we were very  
9 conscious of that, but it was trying then to  
10 address the -- it's hard to -- not all of those  
11 had technology issues. We're also trying to drag  
12 out those technology-specific things that the  
13 working group can deal with, and we had expertise  
14 that we could draw from.

15 VICE CHAIR SAADE: Go ahead.

16 MEMBER THOMAS: Are you looking for  
17 ideas for the technology working group to  
18 discuss? This operational forecast system; I'm  
19 always interested in the validation we had in  
20 these models. Things like that. I would have  
21 several ideas that could be discussed from the  
22 technology point of view. But they don't really

1 fall in the charting area.

2 MEMBER GEE: That was my concern; it's  
3 not just charting. It's the broader -- we're  
4 responsible for, as an HSRP, that was my concern  
5 was just charting. So I am interested. It is  
6 moving up, probably you're leaving the technology  
7 working group eventually? You know, we will be  
8 looking for more members and co-chairs.

9 MEMBER THOMAS: Wait a minute.

10 (Laughter.)

11 VICE CHAIR SAADE: That's a good  
12 point. We didn't drag anybody into the  
13 technology working group who's new. We have to  
14 do that.

15 Julie, some of it is just for  
16 information and educational purposes, so some of  
17 the things that you do and that you're involved  
18 in would be probably pretty ideal to have as a  
19 breakout session or as a dedicated session.

20 MEMBER THOMAS: Okay.

21 VICE CHAIR SAADE: Okay? All right.  
22 Then before we break, to get this one back in

1 everybody's head, I think everybody's read about  
2 it in terms of the SAB, which I never heard of  
3 before, has reached out to us to start a dialogue  
4 and see where there is overlap between what the  
5 panel is doing and what they are doing.

6 So I would say that what we want to do  
7 right now is bring this to everybody's attention.  
8 And before we jump too far into what all the good  
9 ideas are that there might be, we should actually  
10 talk to the SAB and find out what they are  
11 interested in, because we have not had any direct  
12 contact with them yet.

13 So if we can all agree that this is a  
14 good idea, and then whoever wants to reach out to  
15 talk to them, I'm happy to be the point to break  
16 the ice and see what they're looking for, or we  
17 can send a formal letter from the panel, I guess.

18 CHAIR MILLER: At any rate, I would  
19 say that probably since the letter was to you and  
20 me, that we should say, Yes, we are interested --  
21 if we are interested -- and arrange a phone  
22 conference to talk about it.

1           A couple of things that I have learned  
2           from Larry Mayer; he's been involved with the  
3           Science Advisory Board for a long time. He said  
4           he wasn't aware that they had ever reached out to  
5           another FACA. They do have technology working  
6           groups.

7           And the other thing we did was, we  
8           looked at the membership of the SAB; there's not  
9           a marine scientist. They are weather people,  
10          they are satellite people, et cetera, so I think  
11          they've been tasked by -- if not Admiral  
12          Gallaudet himself, by the administration to look  
13          into these things, and have recognized that they  
14          don't have the in-house expertise. And perhaps  
15          they've been made aware of our issue papers and  
16          such. So that's just a little background. I'll  
17          turn it over to Russell.

18          DR. CALLENDER: So I get to leave  
19          beautiful windowless room Miami and go up to the  
20          SAB meeting on Monday, so I'm happy to raise this  
21          issue there. I will say my observations mirror  
22          your own, Joyce. This group is really focused on

1 weather, it's focused on satellites, and they're  
2 not focused at all on any of the marine-related  
3 sectors, and I think the time is long overdue to  
4 push them harder. They can add some value to  
5 what this group does and find some synergy.

6           So I'm happy to stir the pot and  
7 help you where I can to make those connections.  
8 I won't reach out too far; I'll get some ideas on  
9 maybe what you would want me to say specifically,  
10 but I'll be happy to be that conduit if that will  
11 be useful to you.

12           Secondly, one observation about the  
13 SAB that I just wanted to bring up every briefly:

14       Over the last couple of years, what they have  
15 done is, they have brought in people that I would  
16 call futurists. They're looking at things like  
17 exoscale computing; they're bringing in the IBM  
18 Watson team to see what artificial intelligence  
19 things they can bring.

20           So what they've done is, they've  
21 brought some people in -- I wouldn't call it the  
22 fringe -- but they're on the fringe of some

1 really cool thinking that might be useful to  
2 mirror that sort of approach here. You know,  
3 what are some of the trends in geodesy that we  
4 need to focus on? What are the trends in hybrid  
5 autonomy?

6 So we could bring in some of those  
7 kinds of groups, some of that futurist thinking  
8 to stimulate the thinking in this group. It  
9 might be a fun opportunity to scheme and to learn  
10 from those folks. It's something you could steal  
11 from the SAB that might be sort of fun to  
12 consider.

13 CHAIR MILLER: Let's maybe get  
14 together over lunch, you and Ed and I and talk  
15 about where we want to go. We need to go to  
16 lunch very soon; I don't know if anybody's  
17 starving yet, but I'd welcome other comments.

18 MEMBER THOMPSON: The AI idea is  
19 great; our agency is currently partnering with  
20 the University of North Carolina Charlotte and  
21 the North Carolina Department of Transportation  
22 to do an AI project involving lidar and

1 bathymetric data. So I think that's a very good  
2 topic that we should look at.

3 CHAIR MILLER: We talk about the  
4 future with the prioritization and so forth; this  
5 should be added into the mix of what our  
6 priorities are. So we need to put that into the  
7 prioritization effort, because this could turn  
8 into work, and again, everybody has limited  
9 resources.

10 Time for a break.

11 (Whereupon, the above-entitled matter  
12 went off the record at 12:34 p.m. and resumed at  
13 1:34 p.m.)

14 MS. MILLER: Good afternoon. This  
15 afternoon we're -- excuse me, I'm not very well  
16 organized right now.

17 This afternoon is mostly internal  
18 deliberations for anyone who are, who is here.  
19 We don't have many, we don't have any panels  
20 scheduled. It's mostly a conversation.

21 We're going to have an update. We're  
22 going to continue with the planning and

1 engagement group discussions on priorities and  
2 recommendations. And we're also going to have a  
3 brief update from the newly reorganized emerging  
4 arctic working group priorities.

5 So Dave and Kim, if you want to carry  
6 on your --

7 MEMBER MAUNE: Okay, thank you. Can  
8 we call up the first issue paper, please? The  
9 Blue Economy. Okay, that's got -- can you make  
10 that wide screen, see as much of that as we can  
11 with the largest text? You can explain what  
12 happened.

13 MEMBER HALL: Let me just do a quick  
14 -- we had gotten a paragraph from Glenn as  
15 requested, it just didn't fit in this context.  
16 So Joyce did a little bit of rewickering to get  
17 rid of, to acknowledge that it's being  
18 acknowledged, but to continue to ask the  
19 administration, NOAA administration to stress the  
20 importance.

21 We added Blue Economy where we could  
22 and brought that bottom line up front, a little

1 bit more up front. Much appreciated, Joyce. I  
2 appreciate it.

3 So it should have gotten sent to you  
4 all a little while ago. I know it's tough when  
5 we're in the middle of panels to read the papers  
6 as well. But I think it is very similar to what  
7 it was, but just takes into account the Secretary  
8 of Commerce's comments on the Blue Economy and  
9 the importance of precision navigation.

10 MEMBER MAUNE: Can I see more of the  
11 yellow text there? Scroll down a little bit,  
12 please.

13 MS. MILLER: Okay, the yellow text in  
14 the first paragraph is pretty much what we had  
15 before, but it was moved up to the first  
16 paragraph. Those two sentences are pretty much  
17 as they were before.

18 It's the next paragraph where we tried  
19 to use the Blue Economy and transformational  
20 infrastructure and other, other phrases that have  
21 pretty much recently gotten new meaning, I guess  
22 I would say. So it's the second paragraph people

1 should probably --

2 MEMBER MAUNE: Can you scroll down so  
3 we can see that whole paragraph there? Scroll  
4 down, there, that's fine. Let you people read  
5 that.

6 We brought in the transfer,  
7 transformative infrastructure there.

8 MS. MILLER: Return on investment in  
9 the next sentence.

10 MEMBER MAUNE: Yes. Any objections to  
11 these changes?

12 MS. MILLER: I was writing this at  
13 midnight last night, so improvements are  
14 appreciated.

15 MEMBER MAUNE: Anybody have any  
16 feedback, comments? The rest of the paper is  
17 unchanged. Is that correct?

18 MEMBER HALL: The only question I had  
19 as we go farther down, so I think we can take  
20 some of the highlighting down. But if you could  
21 go down where you see highlighted text, down?

22 So there, I put "approximately." I

1       couldn't find a squiggle on my symbols, so I  
2       thought approximately fit in that line. So I  
3       just made it "approximately."

4               MS. MILLER: I added, "depending upon  
5       the cost of oil," as Julie had mentioned.

6               MEMBER HALL: Okay, if we keep going  
7       down, please? I'd just, I'm curious as to how  
8       we're using bolding and italicizing throughout  
9       the paper because we had used that for our bottom  
10      line up front. I highlighted these because I saw  
11      that and I wasn't sure. I just wanted to ask the  
12      question.

13              MS. MILLER: We might want to make  
14      those italics, rather.

15              MEMBER MAUNE: Yes.

16              MS. MILLER: That was done in some  
17      iteration of the paper. I cannot, I, there is  
18      not consistency there.

19              MEMBER HALL: Okay, yes, I just wasn't  
20      sure what the, what we were trying to highlight  
21      because there's a lot of, kind of, other things  
22      with numbers and costs. And just wanted to make

1       sure that we were, like I said, being consistent.

2                   MEMBER MAUNE:   And, Lynne, when you  
3       have formatting people look at this, do they  
4       decide what they think is appropriate to be  
5       italicized versus highlighted?

6                   MS. MERSFELDER-LEWIS:  No, but I can  
7       help you guys do that.

8                   MEMBER MAUNE:   Okay.

9                   MS. MILLER:   I think italicized versus  
10      bolded would make sense that these are --

11                  MEMBER MAUNE:   Yes, it's too much bold  
12      there.

13                  MS. MILLER:   Yes.

14                  MEMBER MAUNE:   Okay.

15                  MS. MILLER:   Let's look at the final  
16      recommendations.  I want to make sure those are  
17      -- the reason "marine" and "geospatial," that had  
18      been "marine and maritime" in one iteration.  And  
19      I changed it to geospatial to be more consistent  
20      with the --

21                  MEMBER MAUNE:   And we made some other  
22      changes recommended by people at the panel

1 yesterday. Okay?

2 MS. MILLER: Juliana, would you check  
3 that that bottom, the final reference is correct  
4 for me?

5 (Off mic comments)

6 MEMBER MAUNE: Okay, can we vote to  
7 approve this as written, as changed? All in  
8 favor?

9 (Chorus of ayes)

10 MEMBER MAUNE: Anybody opposed? Okay,  
11 let's move onto the next paper then, please.

12 Okay, and here I think most of our  
13 comments were on the second page. So we can move  
14 onto the second page to where we see some things  
15 highlighted in yellow. And that paragraph right  
16 there, that was where we had discussions on how  
17 are we going to rewrite that.

18 And Rick came in with the suggestion  
19 that we delete that entire paragraph. Do you  
20 want to make any comment on that, Rick?

21 (Off mic comments)

22 MEMBER MAUNE: No? You just recommend

1 that whole paragraph be deleted. He felt it, he  
2 told me he felt it really wasn't adding anything  
3 to the paper. And that --

4 RDML SMITH: I haven't looked at the  
5 whole thing in context, but I agree with Rick  
6 that putting a specific performance measure in  
7 there that we have not yet vetted in the other  
8 places that we talk about performance measures  
9 would be premature, and we might end up  
10 regretting it.

11 So if there's a way to have some of  
12 the spirit of the paragraph without the specific  
13 performance measure against, I think that would  
14 be helpful.

15 MEMBER MAUNE: Were you, are you  
16 recommending that something be put back in there  
17 that represents the spirit of the thing?

18 RDML SMITH: I'm looking at Rick, and  
19 he's --

20 CAPT BRENNAN: I don't think so. I  
21 mean, I appreciate what you're trying to do, but  
22 at this point I don't think so. I mean, I, the

1 only other edit that I had I was trying to do in  
2 the context of the online document and I, in the,  
3 it's in the digital files and I could not, but  
4 was at the bottom of the document where it says,  
5 "the HSRP recommends."

6 MEMBER MAUNE: Want to scroll down  
7 some to see that? Scroll down the page to where  
8 it says, "HSRP recommends that NOAA should..."

9 CAPT BRENNAN: It's a little more --  
10 (Off mic comments)

11 MEMBER MAUNE: There's actually a  
12 third bullet underneath that, too.

13 (Off mic comments)

14 CAPT BRENNAN: So that, I guess what  
15 we were trying to say -- no.

16 (Off mic comments)

17 MEMBER MAUNE: Is that the part you  
18 wanted or the ones, prior page?

19 CAPT BRENNAN: The part above that.

20 (Off mic comments)

21 MEMBER MAUNE: Scroll up, please.

22 CAPT BRENNAN: Right there. So we are

1 capable of surveys of a series of multiple  
2 launches. I think the only thing that I would  
3 like to add to that or supplement is that  
4 "multiple launches."

5 I think what we would like is we're,  
6 in looking ahead is that, yes, it may carry  
7 multiple launches but we would like it to be  
8 capable of carrying autonomous underwater  
9 vehicles, ROVs, ASVs, LMNOPs, PDQs, right.

10 We want all of that, not just  
11 launches. So I think we want to be a little more  
12 ecumenical about what it's carrying than just  
13 launches.

14 MEMBER MAUNE: I couldn't write fast  
15 enough to get what you were just telling me  
16 there.

17 (Off mic comments)

18 MS. MILLER: Well, I would say "and/or  
19 other" --

20 CAPT BRENNAN: Yellow things.

21 MS. MILLER: If you didn't hear it,  
22 his suggestion was "yellow things."

1                   CAPT BRENNAN: So you can just say  
2 multiple launches and autonomous and remotely  
3 operated vehicles.

4                   MS. MILLER: Okay, launches and  
5 autonomous or rogue --

6                   MEMBER HALL: It just, it sent us to  
7 the next page.

8                   MS. MILLER: No, if we take that  
9 paragraph out.

10                  MEMBER HALL: I just took it out,  
11 ma'am.

12                  MS. MILLER: Why?

13                  CAPT BRENNAN: You just took out the  
14 other paragraph on the document, right? I mean,  
15 so that's --

16                  MEMBER HALL: Right, but we're on the  
17 third page in this one. If I take that paragraph  
18 out, we -- can I add that line in when we go  
19 through the investigation?

20                  (Off mic comments)

21                  MS. MILLER: Well, okay, I will. I  
22 would add to that. I had one more question.

1 Let's, okay, Lynne's working on that, or Kim's  
2 working on that.

3 MEMBER MAUNE: Multiple launches and  
4 --

5 MS. MILLER: And/or --

6 MEMBER MAUNE: -- autonomous and  
7 remotely operated vehicles.

8 MS. MILLER: Yes.

9 MEMBER MAUNE: Okay.

10 MS. MILLER: Can we go back up a bit?  
11 There was something that Admiral Hann said  
12 yesterday. Go up another paragraph, please.

13 Okay, what I heard from Admiral Hann  
14 last, yesterday, was that there was \$75 million  
15 in 2016 and \$75 million in 2017. And that figure  
16 had come earlier from the fact check I tried to  
17 do, I did with -- and it wasn't, Rick, you didn't  
18 --

19 CAPT BRENNAN: 155 is correct. The  
20 first year we got \$80 million, \$75 million of  
21 which was to go towards the, towards the vessel  
22 itself. Five million was to help reinvigorate

1 the NOAA shipbuilding infrastructure that had,  
2 that had been emaciated over the last 10 years.

3 MS. MILLER: And 2017?

4 CAPT BRENNAN: It, no, that would, it  
5 would have, it would have been '16. So it was  
6 the very first installation that we got. I  
7 believe it was \$80 million, and then the second  
8 one was \$75 million. So that's why the combined  
9 is \$155 million.

10 MEMBER MAUNE: No, we changed it  
11 yesterday from 155 to 104. So that was wrong?

12 CAPT BRENNAN: Yes, and I guess I  
13 can't put those numbers.

14 MEMBER MAUNE: Right now it says \$104  
15 million because we changed it from that, from  
16 \$155 million yesterday.

17 MS. MILLER: Yes, someone had come  
18 back to me and said it was only, a smaller  
19 amount. But from what I heard from Admiral Hann  
20 yesterday, she said it was \$75 million in both  
21 years.

22 And so I would say we need to change

1 that back to \$150 million in that she should be  
2 the knowledgeable reference.

3 CAPT BRENNAN: Yes, I mean, it's an  
4 accounting game, right. I mean, but yes, I think  
5 that the, I think the line that we have is \$75  
6 million per year --

7 MS. MILLER: Per year.

8 CAPT BRENNAN: -- that we're getting,  
9 and so that's what we've got to figure, so.

10 MS. MILLER: Okay, so we need to  
11 change it to \$150 million. And I think we can  
12 deal with the length issue with NOAA editorial.

13 MEMBER MAUNE: We'll figure that out.

14 MS. MILLER: Yes, we'll figure that  
15 one out. Don't worry about the length.

16 (Off mic comments)

17 MS. MILLER: Yes, okay.

18 MEMBER MAUNE: Okay, and then if we go  
19 back down to the bottom of the three  
20 recommendations. The third recommendation on the  
21 next page, we changed that to integrated, did we  
22 not? Yes, integrated approaches.

1                   And then we added the other reference  
2                   at the bottom. And, Andy, I think you said there  
3                   should have been a date on that?

4                   MR. ARMSTRONG: There were several  
5                   versions of that; 1974 is the last one. It has  
6                   been amended several times since then.

7                   (Off mic comments)

8                   MS. MILLER: Yes, that's a, that's a  
9                   check we can make through NOAA just to get the,  
10                  make sure that we are correct, so.

11                  MEMBER MAUNE: Okay.

12                  MS. MILLER: Given those changes, I --

13                  MEMBER MAUNE: Do we have concurrence  
14                  with these changes, subject to minor  
15                  wordsmithing? All in favor say aye, or raise  
16                  your hand.

17                  (Chorus of ayes)

18                  MEMBER MAUNE: Opposed? Okay, thank  
19                  you.

20                  For the third of four subjects, I  
21                  wanted to just let people know the status of the  
22                  controversial topic we had yesterday on licensure

1 of hydrographers and photogrammatrists, et  
2 cetera.

3 I'm sorry that I got us stuck in a, on  
4 a dime there yesterday in such controversy. I  
5 apologize for that. We spun our wheels for a  
6 long time and got nowhere. And I did an informal  
7 query of other members of this panel, and it was  
8 pretty unanimous that we should drop the subject.

9 I would also add that I've had  
10 discussions with Gary Thompson. He knows the  
11 concerns that I've had about the NCEES exams and  
12 the issues that I've encountered in some of the  
13 states.

14 He says that NCEES is responding to  
15 those kinds of issues, not just from me but from  
16 other people, and that this August, I think,  
17 there's going to be, there's going to be an exam  
18 task force responding to those kinds of issues,  
19 giving feedback to the public on that.

20 And from my perspective, if they can  
21 address those issues, a lot of the concerns that  
22 people here raised may go away. They're talking

1 about having modular exams for boundary surveys  
2 separate from exams for hydrographic surveyors or  
3 photogrammatrists or what have you, or for the  
4 remote sensing technologies.

5 So with that, I think we had a good  
6 talk yesterday, Gary, and that there's a way  
7 forward here that might satisfy our needs. So I  
8 would like to just drop that subject now because  
9 I don't know that it's in the purview of HSRP to  
10 come forward with any viable recommendations to  
11 NOAA on that subject.

12 With that being said, unless anybody  
13 objects, I'd like to proceed to turn this over to  
14 Kim so we can address the issues of  
15 prioritization.

16 MEMBER HALL: I think my only question  
17 though, I think that Joyce owes an answer back or  
18 we, to that letter that we received from --

19 MEMBER MAUNE: Okay.

20 (Off mic comments)

21 MEMBER KELLY: Yes, I think we  
22 definitely need to reply, and perhaps just short

1 and succinct. "We appreciate your concerns. We  
2 have taken it under considerations, and regret"

3 --

4 (Off mic comments)

5 MEMBER KELLY: Yes, I'll just put some  
6 and send it over to you. Yes, and just,  
7 basically, "it's beyond the purview of the bounds  
8 of this panel," and --

9 (Off mic comments)

10 MEMBER GEE: So can I just comment?  
11 We spent a lot of time discussing that and  
12 there's obviously a lot of interest in it. But  
13 are we saying even in the final letter from the,  
14 normal end-of-meeting letter, there's no mention  
15 of it at all as well?

16 MEMBER HALL: I'm sorry, I'm just, I  
17 meant in, we need to write a separate letter in  
18 response to the Association because Joyce got one  
19 delivered to her.

20 So I think we need to answer that with  
21 a copy all. Not our purview, that there are a  
22 diverse number of views on our panel but this is

1 not where we deal with it.

2 And then I think we do need to mention  
3 that that is something that the panel decided in  
4 our, in our summary. Maybe not the letter  
5 itself, but I know that you also attach a  
6 two-page summary. To say, "Hey," that way  
7 there's some record that we have considered and  
8 moved on.

9 MS. MILLER: Yes, and I, as we are  
10 moving on, as Kim does the discussion of our  
11 priorities, we have the priorities of where we go  
12 next.

13 We also have to think of, as we're  
14 doing that, in the recommendation letter we try  
15 to have two or three very, sort of, consensus  
16 recommendations to the administrator. And  
17 that's, we probably -- so there's that, and  
18 that's in the letter.

19 And then the next two pages are a  
20 summary of the meeting. And what I may do, once  
21 we get -- so we need to think about not only what  
22 our next projects are, but think about, from this

1 meeting, what are the three most pertinent --  
2 they don't always have to be new recommendations,  
3 Lynne pointed out to me.

4           Sometimes it helps to reiterate things  
5 you've already said because it may take several  
6 cycles to, kind of, for things to bubble to the  
7 top if they really are important to us.

8           Okay, so we've got the fleet paper and  
9 the infrastructure paper that are going, and so  
10 those go as attachments. And then we have the  
11 two-page summary. And what I may do, we  
12 probably, I hope we have plenty of time.

13           What I've done once before is once  
14 we've decided on what those top level projects  
15 were, I had people break out for a half hour in  
16 three little groups to, kind of, summarize.

17           For instance, we could summarize the  
18 main observations from the two panels and what we  
19 should include in the summary. And from that,  
20 then we bring out the top level things that we  
21 should make recommendations on.

22           So that's what I want to look at as

1 Kim does the prioritization, and talk about.

2 MEMBER HALL: I think we have a list  
3 going up, or is that not possible, Lynne? Okay.  
4 Just make it all one page if you could. I don't  
5 want to go up and down. And it should be --

6 Okay, I think I need it tinier so I  
7 can at least -- and I can, I'll tell you when I  
8 need you to zoom in. How's that sound? Okay.

9 Okay, so this is just a view. These  
10 are things over the last two years, and really in  
11 the last meeting, that I have collected and that  
12 we have talked about when we go around the table.  
13 And so some of these are ones that, when I sent  
14 out that initial survey, these were the ideas  
15 that we talked about. But I asked for additional  
16 ones, potentially.

17 So I got a couple of others as  
18 suggestions, which I realize after the fact was a  
19 little unfair because you couldn't then go vote  
20 on the new ones. So they didn't float to the  
21 top.

22 So what I, what I, only thing I want

1 to do today is talk about our topics and what we  
2 have brought up. And now we can take one off,  
3 which is nice, and think about it in different  
4 context than what we'd had here.

5 There's an instance up there that says  
6 "local stakeholder inputs." We are always going  
7 to have those at any one of our meetings. And so  
8 I might pull that out as an action.

9 Hey, so we want this idea, so the  
10 modeling -- and I was talking to Rachel at lunch.  
11 Is there something that's happening in Alaska  
12 related to the modeling that we've been talking  
13 about that we can get the context, but we're  
14 still interested in that subject?

15 So what I want to do today, give you  
16 all maybe 30 seconds to give me a couple of ideas  
17 if you don't see them up there.

18 And I'm happy for him to go ahead and  
19 now scan in there. And if you could blow it up?

20 And all we need to see is the topic,  
21 because I just, I started to put brief  
22 descriptions in and then that became not a labor

1 of love, a labor of no fun. That's good enough,  
2 thanks.

3 So I put the numbers into anything  
4 that made it to the top five, which, again, I'm  
5 going to blame Mr. Thompson on giving us the idea  
6 that we do the top five, which I think was a  
7 great idea because it gave us somewhere to focus.

8 And the whole idea of doing this was  
9 to give us some idea of what we needed to do, as  
10 Joyce repeated yesterday, on the issue papers,  
11 but also interim, from between meetings, what  
12 we're going to do on telecons, where we can get  
13 some more information from NOAA, and then really  
14 what we want to see at the next meeting.

15 So I know we keep getting requests for  
16 what do you, what topics do you want. I think  
17 this should be also a tool, and for which,  
18 informs how NOAA helps us put together those  
19 panels.

20 So I'm happy to say, if you go down a  
21 little, or the certification of hydrographic  
22 surveyors, my plan is to remove that from this

1 one, as well as the local area inputs, because I  
2 think that's just an action versus a, versus  
3 something that we actually focus on.

4 I'm going to let him scroll, let you  
5 all look and then, again, give you guys a quick  
6 round robin to give me some other ideas, if there  
7 are any. I think we have quite a list. Or if  
8 anything needs to be removed, we've dealt with  
9 it, or it needs to be, kind of, put to later.

10 And, Joyce, you'll notice education is  
11 up there. It was a separate issue from  
12 certification. I know you mentioned that to me  
13 the other day. So just wanted to give you guys a  
14 couple, minute, to look at it and then we'll  
15 start with probably not a new member. Or do you  
16 want to start?

17 MEMBER MAUNE: I have a question on  
18 the information infrastructure. How does that  
19 differ from the maritime and geospatial --

20 MEMBER HALL: It doesn't. It just,  
21 that was what we called it before we called it,  
22 we coined the term..

1                   MEMBER MAUNE: Okay, so that could  
2 basically be written off too, could it not?

3                   MEMBER HALL: I think it's something  
4 that stays on our list of items to keep track of.  
5 I don't think we remove it, but maybe it's not a  
6 top five priority anymore until we get feedback  
7 from the administration and we see something  
8 change.

9                   But that's what they, that's what the  
10 survey will go on to do. Let's put these topics  
11 up there and if somebody thinks we need to do  
12 more, you vote in the top five.

13                  MEMBER GEE: Your labor of love that  
14 you started I think is really useful to, probably  
15 for new members particularly, to --

16                  MEMBER HALL: Indeed, and I would love  
17 anybody who wants to give me input. Wait, I'm  
18 sorry. Let me be like Dave. Give me input now.

19                  MEMBER GEE: Yes, okay.

20                  MEMBER HALL: And then I will make  
21 sure those go in there.

22                  MEMBER MAUNE: Julie's got some ideas,

1 I'm sure.

2 (Off mic comments)

3 MEMBER THOMAS: Okay, just don't  
4 volunteer me for anything now. So, to me, the  
5 USACE NOAA partnership, I look at that and there  
6 are probably four topics there that I see that  
7 would -- so I just wanted clarification.

8 MEMBER HALL: So that has been an  
9 ongoing thing. And if you look at the top five  
10 list, and I think it's been on all of our emails,  
11 and I apologize, I don't think it ended up -- or  
12 did it end up in --

13 MEMBER THOMAS: It did end up on them.

14 MEMBER HALL: So if you saw, it, what  
15 we requested was to get periodic updates from  
16 Shep. So we were doing a lot to talk about it,  
17 and Shep and his team have been doing a lot  
18 behind the scenes to improve that relationship.

19 But we don't ever want to lose track  
20 of it because there's a lot of important issues.  
21 There's not one specific to that.

22 But we weren't writing issue papers

1 yet. We weren't, we were kind of circling,  
2 waiting for feedback from Shep where the panel  
3 could be helpful in improving or highlighting  
4 something.

5 So they're all a little different,  
6 that's why the action requested underneath them.  
7 But I'm happy to put a little bit more clarity in  
8 what that was.

9 MEMBER PAGE: I have a quick question,  
10 if you go back up, scroll up if you would. As  
11 Dave just mentioned here about this -- a little  
12 further up. Information infrastructure, I guess  
13 I --

14 (Off mic comments)

15 MEMBER HALL: I'm going to hold us to  
16 it. I want to make sure that Julie is happy. I  
17 know that you, we need more context. There's no  
18 context for you right now, I understand.

19 MEMBER THOMAS: Yes, I mean guess  
20 that's it.

21 MEMBER HALL: And so it, this was a,  
22 this is a, for me, it's a Bill Hanson issue. And

1 I just, if somebody else can give me a couple of  
2 words to put there.

3 MS. MILLER: I'll take it, I'll take  
4 it.

5 MEMBER HALL: Yes, I appreciate it.

6 MS. MILLER: Okay, in specific, what  
7 we have been tracking is the issue of, it's in  
8 one of our issue papers and I wish I could  
9 remember. Sorry, I think I'm catching Andy's  
10 cold and my brain is not working.

11 The issue is that NOAA and Army Corps  
12 -- and we've heard it this week again, it's not  
13 clear, certainly not clear to our stakeholders,  
14 who is responsible for mapping what in our  
15 channels, and --

16 (Off mic comments)

17 MS. MILLER: But it's broader than  
18 that because Shep's been working on a Memorandum  
19 of Understanding, or whatever you call it,  
20 between the Army Corps and NOAA for a long time.  
21 It's a very long process. And, Shep, if you want  
22 to update us on that.

1                   RDML SMITH: Yes, it's really, I mean,  
2 I think the short, brief description just should  
3 be surveying and charting in channels, period,  
4 right. Because there's a lot of other things  
5 that we could talk to the Army Corps about from  
6 modeling to CDIP and all this other stuff.

7                   It's not, that's not the issue. It's  
8 about surveying and charting in federal channels,  
9 yes.

10                  MS. MILLER: Yes, it, yes that's sort  
11 of what the issue paper is.

12                  Even though I'm a hydrographer, it  
13 took me several years on this panel to understand  
14 that the standards for charting in our channels  
15 are not followed in the same way by the two  
16 organizations.

17                  And if you haven't read it, I mean, it  
18 was very eye-opening to me that we may not be  
19 meeting the national, international hydrographic  
20 organization standards in all cases.

21                  MEMBER HALL: Ed had a question. I  
22 can walk through these very briefly. I know

1 there's folks in this room that are a lot smarter  
2 on what we meant by these.

3 But the first one there being  
4 autonomous vessels, that was the emerging  
5 technology. The technology group is looking at  
6 it, and we were asked by NOAA to look at the  
7 strategy. So that's something that's staying  
8 there. We've given those inputs.

9 Moving on, subsidence and sea level  
10 rise, that's a Larry one. Kind of got a little  
11 bit of that today. And are we taking it now  
12 towards the technology? Is there technology that  
13 can help with this?

14 Information infrastructure is what  
15 ended up turning into the marine geospatial --  
16 what was the word that you guys came up with?

17 (Off mic comments)

18 MEMBER HALL: Data infrastructure  
19 paper, so we hadn't quite defined it yet. But we  
20 were asked because of the administration's look  
21 at infrastructure. So Glenn had given us kind of  
22 a, hey, let's think about infrastructure. And

1 that's what that is.

2 Education is, again, kind of promoting  
3 the education of hydrographers, oceanographers,  
4 the, kind of the gamut. And I know Joyce knows  
5 more about that.

6 Enhanced navigational assistance is  
7 what we relate to the, kind of, the precision nav  
8 expansion of ports, so always on our radar if we  
9 need to update the precision navigation paper or  
10 not.

11 Crowdsourced data is a consistent one.  
12 Kind of how do you incorporate those  
13 non-authoritative data sources?

14 Disaster response, which I think Glenn  
15 kind of answered for us in a lunch session. We  
16 were all very surprised in the middle of Irma, or  
17 Maria, whatever the one it was while we were in  
18 New Hampshire, that they were scrambling to find,  
19 kind of, sweep up funds because most of the  
20 hurricane season is at the end of the fiscal  
21 year.

22 And so how can NOAA do a better job or

1 what else could they do to ensure that they have  
2 the money they need, especially if they're not  
3 going to get reimbursed by FEMA?

4 But again, something that I think NOAA  
5 has been dealing with, so not quite as big a  
6 question. We wanted more information to  
7 understand.

8 Offshore charting, that was always  
9 Lawson's, with regard to the kind of arctic  
10 offshore leases, specifically.

11 Managing big data and databases, which  
12 we didn't get to. And I think I actually got my  
13 one in the wrong one, because that was one of our  
14 top issues.

15 And that's just kind of exactly what  
16 it says. You're getting all these data sets.  
17 How do you manage that? How do you, are able to  
18 produce things out of it? And again, I think the  
19 technology working group was going to look at  
20 that if they haven't already. I can't remember.  
21 We had a presentation in the last few months on  
22 it.

1                   Technology transfer, Ed talked about  
2                   that. Ed Saade talked about that and the, kind  
3                   of, the interest of what NOAA is doing and how  
4                   you transfer that and how private industry can  
5                   take it and move it forward, and the ROI piece  
6                   there with making money off of it as well.

7                   Stakeholder feedback for NOAA products  
8                   is kind of a consistent thing that's --

9                   (Off mic comments)

10                  MEMBER HALL: That's kind of why, one  
11                  of the reasons HSRP exists, right. We want to  
12                  make sure we're getting feedback and looking for  
13                  external stakeholders.

14                  And again, I think that's something  
15                  that's just always something we should be asking  
16                  for in every meeting. So maybe it's not  
17                  something here that we do something about, it's a  
18                  supporting function.

19                  I already talked about the local  
20                  stakeholder input. We've talked about the Army  
21                  Corps and NOAA partnership.

22                  The offshore observing sites, so this

1       came from I believe, Rich, about, kind of, how do  
2       we harden those sites given weather events, aging  
3       infrastructure, those kinds of things.

4                 The public-private, or  
5       satellite-derived bathymetry was something that  
6       got inserted into the initial survey which asks  
7       for other topics. I don't recall exactly who,  
8       and I tried not to actually track specific  
9       people's answers. I just tracked if you took my  
10      survey.

11                The public-private partnerships is  
12      something we've heard over and over again during  
13      this meeting. It's not new to this meeting. And  
14      I was looking for a little bit more clarity on  
15      how we wanted to, from the HSRP perspective, move  
16      forward with that.

17                And as requested by Joyce, I added the  
18      science advisory board, and I decided to call it  
19      cross-pollination until we have a better idea of  
20      what exactly they're looking for from us.

21                So in a nutshell, that's been kind of  
22      all the topics over the last, at least, year, if

1 not longer, I'm sure, that we have been talking  
2 about in some way.

3 And a lot of it we haven't done much  
4 with because we're just kind of waiting for  
5 updates. And some things, I think, other members  
6 would like to move forward and do something  
7 about.

8 MEMBER MCINTYRE: Kim, I think you've  
9 done a great job of pulling together that list.  
10 The one thing that kind of pops out at me with  
11 that is there are certain subjects that we just  
12 would like to be updated on, and kind of follow  
13 what NOAA is doing with them.

14 And then there's other ones that are,  
15 kind of, action items for the HSRP. And I'm  
16 wondering when we do, kind of, rank those  
17 priorities, perhaps if we pull them out into one  
18 of two categories, or maybe they're kind of in  
19 both categories. But that would just be my  
20 thought.

21 MS. MILLER: Yes, I think in many of  
22 those we can put a check mark that we've done

1 something about them in the past six months.

2 For instance, we've got the two  
3 papers, we've got the, we have an answer, for  
4 instance -- let me say this. The Science  
5 Advisory Board, Russell Callender thought it was  
6 a very good idea that we respond.

7 They are meeting next Monday and  
8 Tuesday. Turns out Ed Saade is supposed to be in  
9 Washington on Tuesday.

10 And what we thought we would do was  
11 respond positively, if that's in agreement with  
12 everybody. And Ed would go and we'd send a brief  
13 memo. Ed and I would send a brief memo and say,  
14 yes, we're very interested. Please tell us more.  
15 You know, an informational request, and then we  
16 can figure out what to do from there.

17 MEMBER HALL: I think that's a great  
18 point. I think this needed to evolve. I was  
19 just trying to put something together, especially  
20 with a tool that, unless you pay for it, you  
21 don't get a lot of functionality. So I'm happy  
22 for, also, inputs on how we can do this.

1                   But I think, yes, when I first put  
2 this list together, I think it's important  
3 there's kind of things that we're tracking and  
4 things that we're doing.

5                   I'm going to go ahead and let Mr.  
6 Duffy, Senior start. And again, if we could do  
7 it just kind of quickly. And happy for a couple  
8 of words that I can put in there so that there is  
9 some context for folks who aren't here today,  
10 especially.

11                   MEMBER DUFFY: So first of all, I  
12 appreciate trying to come in and comment. I  
13 realize it's easier to edit than to write. I  
14 will say that I saw a couple of things in the  
15 precision navigation paper that, I think Captain  
16 McIntyre used the term living document.

17                   In one place it says, thereby ensuring  
18 safe and efficient operations. I don't think we  
19 can ensure anything. But I won't go into detail  
20 there. I think there's a couple places that I  
21 might be able to maybe revise that.

22                   The partnership with the Corps of

1 Engineers is very important for our operations.  
2 I've attended the Mississippi River Commission  
3 for many years, and I think that's a great  
4 benefit to our members and the NOAA perspective  
5 there.

6 There are places on top of charting  
7 that may also be interconnected. Air gaps on the  
8 Mississippi River are a huge issue. And between  
9 the two agencies there, in some places,  
10 different, low steel elevation. So I think that  
11 partnership is a good thing.

12 I know in different sandboxes they can  
13 look like, you don't want to tell the Army Corps  
14 what their mission is. And I know their, I've  
15 been in part of some of those discussions behind  
16 the scenes.

17 And I know you'll, Admiral Shep, will  
18 be cautious about keeping that in the we're here  
19 to help each other mode, and not be controversial  
20 or against.

21 The other thing that I would say off  
22 of what I saw, of course I live in a very mushy

1 area, so subsidence is a big deal to us.

2 I will offer that, being in New  
3 Orleans in 2019, if you don't talk about  
4 subsidence, you may have people from the audience  
5 talking about it. So maybe getting out in front  
6 of that. It means a lot of different things to  
7 different people, even within the state.

8 But those were the ones that were  
9 really important to me. And beyond that, being  
10 the new guy, I can't comment on some of the other  
11 things. I trust the other panel members in their  
12 area of expertise to, kind of, chisel away at it.  
13 Thank you.

14 MS. MILLER: Each time, I would really  
15 encourage the new members to, and as you  
16 obviously have done with precision nav, to read.  
17 We have updates -- precision nav paper, because  
18 of the testimony of Secretary Ross, Commerce.

19 We just updated the fleet paper  
20 because it was not current. If you have  
21 suggestions for which papers could or should be  
22 updated, please do it. And probably we will then

1 say to you, well, you're elected.

2 But no, I encourage you to read all of  
3 them and find out which ones are important to you  
4 and --

5 MEMBER DUFFY: I'll be happy to do  
6 that on the ones, as you said, that are important  
7 to me and just trust, again. Going off of  
8 something up on a screen is not a very good way  
9 for me to edit.

10 I'm not as brilliant as everybody in  
11 the room, but I like to see it on paper and play  
12 with it and understand it, if it's important to  
13 me. There are plenty of the papers that are  
14 important to me but that I will not understand or  
15 try to comment on. Thank you.

16 MEMBER MAUNE: Would you like to  
17 receive Word versions of an issue paper so that  
18 you can make track changes with recommended  
19 changes? I think we could work that out, right  
20 Lynne? Yes, the answer is yes. Thank you.

21 MEMBER THOMPSON: Yes, I'm on. AI,  
22 we're really interested in if there's any

1 research being done in NOAA with AI, especially  
2 to, related to disaster recovery, using the  
3 imagery to plot our data. So that's my topic.

4 MEMBER THOMAS: First -- am I on?  
5 Yes, I just want to mention that Glenn sent an  
6 email to Joyce. He just asked me to announce,  
7 and to Shep, that he did write a little blurb on  
8 FEMA. And I think you might have got it to, I  
9 don't know.

10 But anyway, he did give us, and he's  
11 up in his room working. Said if there was any  
12 questions on that to let him know.

13 MS. MILLER: On what?

14 MEMBER THOMAS: On the FEMA --

15 (Off mic comments)

16 MEMBER THOMAS: Yes, letter for later.

17 MS. MILLER: Okay, okay.

18 MEMBER THOMAS: So gosh, looking at  
19 this list, I mean, I think you already know from  
20 my comments that I'm always interested in this  
21 public-private partnership, particularly as it  
22 pertains to the Blue Economy, meaning including

1 precision nav, observation models, and also to  
2 resilience.

3 And so I'll just leave it at that  
4 because I think that many of these topics kind of  
5 fall into that category.

6 MS. MILLER: From discussions I've  
7 heard, I think we should add modeling to our list  
8 of interests, at least, of something to do.  
9 Maybe a seminar, maybe a webinar, maybe a  
10 session, something.

11 MEMBER THOMAS: Well, I would say  
12 modeling and validation if we're actually going  
13 to add it, because the interest should be in the  
14 validation, not the modeling.

15 MEMBER HALL: Can I just get a  
16 clarification? Because if I put modeling and  
17 validation that means, no, is this hydrographic  
18 modeling? Is this bathymetry? What is our  
19 qualifier?

20 (Off mic comments)

21 MEMBER HALL: Okay, I just want to make  
22 sure I have it in there.

1 (Off mic comments)

2 MEMBER KELLY: I guess my mic is on.

3 Yes, I had a couple of things I think we ought to  
4 take a look at.

5 I think the disaster response is still  
6 a hot issue. Compounded by what we heard today,  
7 there is ample opportunity, and not, we have to  
8 stay away from local involvement and who talks to  
9 who, and focus on the NOAA function.

10 And I think there is tremendous  
11 opportunity, as I said before. The services and  
12 the products of NOAA are absolutely at the crux  
13 of a successful disaster situation, both  
14 forecasting, response and recovery.

15 And I think we have to find better  
16 ways to improve on what NOAA is already doing.

17 And I think that can hang down from public-  
18 private partnerships. Contractors, perhaps even  
19 additional equipment, off-season training for  
20 MIST systems or other.

21 So I think there's still room for us  
22 to get better at what NOAA is already doing, and

1 recognized as doing an outstanding job. But when  
2 it comes to people's lives and property and the  
3 environment, it's still not good enough,  
4 probably.

5 I would think that we have to continue  
6 to find ways to stress the infrastructure aspect.  
7 This administration is very responsive to that.  
8 The Admiral was using those words. We need to  
9 use those words and back him up and give him the  
10 tools that he'll need as he approaches the Hill  
11 and also steers NOAA.

12 I think getting on board with the Blue  
13 Economy and stressing -- personally, from being  
14 on the commercial maritime end of things, the  
15 fact that it's being increasingly recognized that  
16 NOAA is a part of the Department of Commerce is  
17 very important.

18 And I think we're getting some  
19 political granularity and traction on that. We  
20 should find ways to continue to exploit that.

21 I think we need to concentrate on a  
22 little bit of how we can find ways to improve the

1 charting of the secondary channels. I know  
2 there's stuff that's going on, but until it's  
3 fixed it's still broken.

4 And I think that's something that's  
5 been brought specifically to our attention as  
6 this panel in several locations on several  
7 occasions, and we would be remiss if, as a panel,  
8 we did not bring that and put it to the attention  
9 of NOAA.

10 Even though we know that there is some  
11 work underway, perhaps we need to speed that up  
12 or broaden it or find some other ways to make it  
13 happen faster.

14 Autonomy is just cool. I think it's  
15 cool, so I'd like us to continue working with  
16 that. Perhaps we could do something, and it was  
17 mentioned before. Let's get some smart people in  
18 here to talk to us about it.

19 I know Wilhelmson is really big on  
20 this. Norway is a leading entity on this.  
21 They're doing it with major, big ships. Should  
22 we be able to find ways of how they're thinking,

1 what they're doing to make these smarter, to  
2 comply with coal regs and to, kind of, have UAVs  
3 that are actually going to be responsive to  
4 people that are breaking the rules, not just when  
5 they're doing what they're supposed to?

6 And maybe get some smart people in to  
7 talk to us about that. Maybe we need to find out  
8 from people with the smart, the unmanned taxi  
9 cabs that are busy running people over.

10 Maybe there's some thinking there that  
11 might help us to understand all the time and  
12 effort and the money and the brainpower that  
13 these people have already put into examining  
14 these things. Because if they think they can  
15 make something operate in New York City with the  
16 traffic and the people -- everybody prides  
17 themselves.

18 You never go on a crosswalk. You  
19 never cross when the light is green. I mean,  
20 they actually were trying to do a no jaywalking  
21 thing uptown in Manhattan one year. And they  
22 actually had to discontinue it because everybody

1 in New York wanted to get a ticket for jaywalking  
2 that they could put on their wall.

3 I mean, if they think they can make  
4 taxis work there, why can't we do something on a  
5 relatively unobstructed waterway? So I think  
6 let's get some smart people in here to talk to  
7 us, and maybe make that a panel of people on  
8 innovation.

9 The other thing I had is we talk about  
10 public-private partnerships. And I think that we  
11 have been, at least from my perspective, and I  
12 hope I'm wrong, we have been remarkably  
13 disconnected from our own IOOS and our regional  
14 associations.

15 We occasionally have them sit in at a  
16 meeting. We don't have the local IOOS even at  
17 this meeting. And I think they have certain  
18 capabilities and opportunities, and I think we  
19 need to exploit that.

20 NOAA's spending a lot of money on  
21 this. I mean, there's 30-something million  
22 dollars. Let's make sure they're doing what we

1 want them to do. Let's hear what they have to  
2 say.

3 There's an awful lot of smart people  
4 in academia or in other areas that can hopefully  
5 help to inform us about what's out there and  
6 possible opportunities to use some of that.

7 And last but not least, modeling. I  
8 like that. I think that you will find, in most  
9 ports, operators will be very receptive to  
10 modeling.

11 As I said, we talked about precision  
12 navigation in New York. Very frankly, we don't  
13 care about waves. Not our issue. It's not like  
14 LA Long Beach where it's a straight shot and  
15 we're looking to go deep.

16 We have very narrow waterways. We  
17 have issues that, these ships are now 1200 feet  
18 long. Our channel is 800 feet wide. We cannot  
19 turn around.

20 So once you commit to go in, you've  
21 got to go, that's it. And if you're driving  
22 into, trying to find the right word other than a

1 shit storm, but something along that line but  
2 more polite. If you're driving into something  
3 like that, that the potential hazard to life,  
4 property and the environment is ridiculous.

5 If you took the Exxon Valdez, and I've  
6 seen this happen, they take that track and extend  
7 it from New York. It goes to Hampton Roads. We  
8 can't have that happen again.

9 So modeling on, not 90 days, but what's  
10 going to happen four hours out. That type of  
11 modeling would be very useful to us. So that's  
12 my laundry list.

13 MEMBER HALL: Does anybody have  
14 anything to add? And you don't have to add if  
15 you don't want to. It's okay.

16 MEMBER PAGE: You must have an  
17 industrial-sized washing machine at your house or  
18 something. Anyway, that's quite a laundry list.  
19 I'm still getting up to speed.

20 What confused me earlier and one of  
21 the things I think has merit to be on the list,  
22 but maybe defined differently, this information

1       infrastructure.

2                       When I think of, which was --  
3       obviously someone else had a different definition  
4       in mind when they said information  
5       infrastructure. And you said this takes the  
6       place of that.

7                       When I'm thinking of all the stuff  
8       we're doing, NOAA is producing all kinds of  
9       information. Charting, weather, currents, tides,  
10      Coast Pilot, whatever, and all that has to be  
11      disseminated.

12                      And that's the information  
13      infrastructure in my mind as far as, it could be  
14      apps, it could be, it could be websites. It  
15      could be radio transmissions, a VHF radio. It  
16      could be Notice to Mariners. It could be EIS  
17      transmission, whatever.

18                      But there's an infrastructure to get  
19      that information out. And so, and I'm not so  
20      sure we're taking full advantage of all the new  
21      technologies, the internet of things and what  
22      have you, to get this information out.

1           Because many different people want  
2 different ways. Some people just listen to the  
3 radio. That drives me nuts, and maybe it's  
4 because I don't hear that well or whatever.

5           And where other people like to see it  
6 on their app on their phone and select things,  
7 not listen to the whole broadcast, and wait until  
8 they get to the area they want to know. They  
9 just say, I just want to know what the weather is  
10 here.

11           So I think information infrastructure  
12 might be worth keeping to some extent or  
13 revisiting and that should be --

14           MEMBER HALL: And maybe we call it  
15 information sharing or something a little bit  
16 different than information -- I know what you're  
17 talking about, but I think --

18           (Simultaneous speaking.)

19           MEMBER PAGE: But I'm thinking along  
20 the lines is NOAA is providing all kinds of --  
21 data delivery, but, you know, mechanisms and  
22 there's a process and what have you. So when I

1 thought infrastructure, information  
2 infrastructure, I was thinking it was totally  
3 different than what you were thinking of --  
4 obviously.

5 But I think that is a core component  
6 is, what good is all this information if you  
7 can't get it out, okay. Dissemination, okay.

8 I saw the discussion on the offshore  
9 re-leasing charting for the arctic. Of course we  
10 want that.

11 (Laughter.)

12 MEMBER PAGE: No, actually I think it  
13 needs to be updated. I don't think that's really  
14 an issue anymore.

15 I realize it's still going to have  
16 some leases, but I think that, I think Shell kind  
17 of stubbed their toe enough and others looked at  
18 this and said this dog won't hunt.

19 And I think that maybe we want to  
20 modify that because since this paper, the Arctic,  
21 NOAA's Arctic Action Plan, which was 2014, which  
22 was good, good document I might add.

1           But since then the Polar Code came in  
2 line and there's some expectations, requirements  
3 internationally as far as how we're addressing  
4 polar operations. And is voyage planning  
5 required of vessels, and polar operations and  
6 information on ice and whether it can go, no go  
7 depending on -- that's all new stuff that didn't  
8 really exist beforehand.

9           And so we're not so much, at least I'm  
10 not, being from Alaska, not as much concerned  
11 about the charting where there might be a lease  
12 somewhere and which lease is going to be  
13 exploited.

14           I'm really now more concerned about  
15 the tankers that are, today, are going across the  
16 top to Canada, and the cargo ships and the large  
17 passenger ships that are going across the Arctic  
18 waters. I think that's a bigger concern than  
19 saying let's chart where the leases might be as  
20 opposed to where's the maritime activity right  
21 now.

22           So I'm going to kind of look at that

1 and maybe suggest some changes to that subject,  
2 and saying we still want charting in the Arctic,  
3 don't get me wrong.

4 But I think it's not focused on the  
5 leases anymore as opposed to the new, the current  
6 emerging operations, because now that Alaska is  
7 talking about developing LNG. Could very well be  
8 shipped out by tanker from North Slope with the  
9 cheapest device, building a \$65 billion pipeline  
10 back down to Valdez. They're talking about that.

11 Certainly, ANWR just got opened up so  
12 that's a different, again, that's changing the  
13 shipping activity up there. So I think we need  
14 to update it to current events.

15 The Polar Code expectations,  
16 requirements and coastal state fulfillment of the  
17 Polar Code and providing information so these  
18 other vessels not engaged in U.S. trade don't end  
19 up on our beaches or cause environmental harm.

20 And also there's a lot of people who  
21 have fought for many years against doing any  
22 development in Alaska because of pristine North

1 Slope or whatever. We need to show that we can  
2 do it right, basically, is what it comes down to.

3 So I think there's a very low  
4 tolerance if we stub our toe. We can't wait and  
5 do the Exxon Valdez and come afterwards, and then  
6 maybe we should go a little further and fix this.  
7 We need to fix it first and be proactive.

8 So I think that's a role that, if you  
9 want to take advantage of the blue economy we've  
10 got to do it right and we've got to make sure we  
11 have the infrastructure or tools or whatever in  
12 place so that we don't have an accident and we  
13 don't set things back.

14 And I think that's, basically, the  
15 accident in the Shell, the two accidents, between  
16 the Kulluk and the grounding of the Fennica,  
17 those accidents basically killed that program.  
18 There's no doubt in my mind that that's what  
19 killed that whole opportunity. So those are the  
20 things I'm thinking of.

21 MEMBER HALL: Is it good for me to  
22 change that to Arctic charting? And then my

1 comment is, charting for Arctic vessel traffic  
2 and Polar Code needs.

3 MEMBER PAGE: Yeah, that's great. And  
4 then I can help flesh that out with my work group  
5 and what have you.

6 I have a shorter laundry list. I'm  
7 done. This is the long talking Ed and the short  
8 talking Ed.

9 MS. MILLER: All right. And this is  
10 the Ed that's not here. I would say welcome as  
11 our new Arctic working group chair. And that's  
12 exactly what we're hoping for, is that we get  
13 update, that that's what the working groups are  
14 for.

15 And one other thing. We can have a  
16 working group that's one panel long and then get  
17 rid of it. But we also have some standing  
18 working groups. And so our hopes are that you  
19 provide us with excellent advice on what needs to  
20 be done or what needs to be considered in the  
21 Arctic. And I'm sure we'll hear about that in  
22 Juneau.

1                   MEMBER MCINTYRE: I think I'm on. I'm  
2 just going to endorse the two Eds' laundry lists.  
3 I think they've covered everything pretty well.

4                   I, the only thing that I wanted to add  
5 is the thing that is, just is really popping out  
6 at me from the meetings that I've had with the  
7 new Admiral is that I think everything really is  
8 going to change in how we approach the blue  
9 economy and commercial maritime infrastructure.

10                   And I'd like to continue to be updated  
11 on what, how that is evolving, I guess. And also  
12 as we look at these new topics, how those  
13 integrate into the plan so that we can best  
14 support it in the direction that it needs to go.

15                   MEMBER GEE: Yes, I totally agree with  
16 that. I think that now is, the Admiral's  
17 comments kind of focused us more again. It's  
18 given us an opportunity to focus a bit better on  
19 what we, how the, how it relates to these topics.

20                   Going back, I know, I see Kim making  
21 changes to information infrastructure down there.  
22 But I kind of still consider the information

1 infrastructure the right, because when I think of  
2 the topics, it's how these affect the, in our  
3 role, how they affect the --

4 MEMBER HALL: I just added, I actually  
5 left information infrastructure --

6 MEMBER GEE: Okay.

7 MEMBER HALL: -- alone because I think  
8 that that is something specific that we've talked  
9 about. And maybe I'll change it to the -- and  
10 our term of art marine and geospatial  
11 infrastructure so that we have that.

12 But I've added in information  
13 dissemination and that's the, kind of, getting  
14 the wealth of data information collected,  
15 aggregated, analyzed, et cetera, et cetera by  
16 NOAA and NOAA entities, how we get that out and  
17 kind of the feedback --

18 MEMBER GEE: Right, yes so --

19 MEMBER HALL: So it's a separate one.

20 MEMBER GEE: And that kind of relates  
21 to public-private partnership because the, a lot  
22 of that sharing and the way it gets disseminated,

1 as Ed's talking about, is actually not NOAA.

2 So I think what we're, our role is to  
3 making sure that NOAA has that infrastructure in  
4 place that are, then allows that efficiently or  
5 moves with the technology. And so that, this  
6 would be my view.

7 I don't know how -- but I see the  
8 infrastructure is, needs to evolve from the paper  
9 charts. That's done, or it's still moving from  
10 paper charts to the paper products to the  
11 infrastructure that now supports the new  
12 technology to be able to disseminate the data.

13 So that's my view of where I think,  
14 and I think we're in line with that. One of the  
15 things I think in the, you've got crowd-sourced  
16 data.

17 It's almost, I think the comment you  
18 have there is what we're talking about. It's  
19 non-authoritative data sources. And I would  
20 actually swap those over and have, it's kind of  
21 the non-authoritative data sources, and that  
22 includes crowd-sourced data, nontraditional

1 hydrographic surveys, and satellite-derived  
2 bathymetry.

3 So it's kind of saying okay, anything  
4 outside those would be -- and I'm not sure who  
5 did the satellite-derived bathymetry, if that was  
6 a specific task. But I see it under those.

7 It's sort of how do you incorporate  
8 those other other data into -- and it's kind of  
9 being addressed by what we saw from Rick with the  
10 data modeling. And so that's part of the one  
11 thing, I believe.

12 What's the other one I was looking --  
13 oh yes, the big data. I think managing big data  
14 data sets is, I think that's where the artificial  
15 intelligence belongs. It's managing and use of  
16 the, these volumes of data and how we better use  
17 it. I think they kind of go together.

18 You can't do the artificial -- well,  
19 the artificial intelligence becomes much more  
20 worthwhile if you've got the big data or the data  
21 volume that you need to produce so that's, I  
22 would suggest we put those together maybe. I

1 don't know. That would be my view on that.

2 So what else did I have. Oh, on  
3 autonomy, yes, I agree with Ed, his laundry list.  
4 And I think, again, we need to think about the  
5 reason we get those experts in to tell us what  
6 they're doing is more, again, to assist in giving  
7 advice to NOAA to know in the future what the  
8 type of products you'll have for, to support  
9 that.

10 Whereas, if they're autonomous that  
11 means there's no people there so why do we have a  
12 -- you base it on a ECDIS in standards. It's all  
13 visual. It becomes different with autonomous  
14 charting and then it brings in the, obviously,  
15 other things, artificial intelligence and all of  
16 those things.

17 So I would, yes, I would support doing  
18 that. And just keep plugging away at autonomy,  
19 noting again also the Admiral's comments about  
20 the autonomous, the importance of autonomous  
21 systems.

22 RDML SMITH: Can I just ask for a

1 clarification of terms here? Because I think  
2 we're slowly mixing up autonomous shipping from  
3 autonomous surveying.

4 And I think we have a very clear role  
5 in using unmanned systems and advancing  
6 technology for surveying. And we have some role  
7 in providing information in a way that can be  
8 used by unmanned shipping. But that's, but it's,  
9 one is a tool and one is a client.

10 MEMBER GEE: But you're --

11 RDML SMITH: So I think it's, both are  
12 important. But I, just for the sake of clarity  
13 here, I think let's not put those under the same  
14 heading.

15 MEMBER GEE: But except that in using  
16 them in an autonomous surveying capacity, you're  
17 still dealing with the same things about the  
18 coral regs. And having something that can  
19 operate autonomously, as you said, is one of the  
20 important things that hasn't been addressed now,  
21 and those are the people that are addressing  
22 that.

1           So I think they go together. But  
2           there's definitely the two different requirements  
3           of you providing product to support autonomy, but  
4           also then the use of autonomous technology in the  
5           other aspects of the role. Yes, they, they're  
6           two separate, but obviously overlapping, so.

7           MEMBER ATKINSON: First, I didn't get  
8           to thank Lynne this morning for helping put that  
9           panel together. Thank you, and whoever helped  
10          you. It was a lot of effort in making that  
11          happen. Yes.

12          I think subsidence or subsidence,  
13          whichever you want to, however you want to say  
14          it, should be a split off on its own because  
15          it's, involves some technology, the remote  
16          sensing technology and the GPS stations. So  
17          maybe that's a separate topic. Just a  
18          suggestion.

19          And that leaves, leave sea level rise  
20          on its own, which is both by gauges and satellite  
21          altimetry and subsidence.

22          Kept coming up, these observations off

1 ports, I don't -- that's a topic now? It seems  
2 like it. We kept -- the observations off ports  
3 like the currents mentioned here and, maybe  
4 that's a topic to -- what kind of observations  
5 are needed to facilitate safe port operations.  
6 Just to make our list. Is it already there?

7 (Off mic comments.)

8 MEMBER ATKINSON: Okay. Yeah, sure.  
9 Yeah, fine.

10 MEMBER MAUNE: Okay, I have two  
11 topics. The first one would be the 3D National  
12 Elevation Requirements and Benefits Study. It's  
13 a question on whether we do anything about the  
14 study with the HSRP or just track and make  
15 recommendations on what the study results come  
16 out to be.

17 But one member of the HSRP asked me if  
18 there was a role for HSRP members to play in that  
19 study. And I sort of said thumbs down because I  
20 was a little concerned it might be too incestuous  
21 that the HSRP was doing something to come up with  
22 benefits.

1           But other people might disagree with  
2 me on that, and maybe HSRP. So I thought I  
3 should perhaps raise it to see if the Admiral or  
4 anybody else feels it would be appropriate for  
5 HSRP members to participate in that 3D National  
6 study.

7           We pretty much progressed along the  
8 lines that we've got the stakeholders identified,  
9 excluding anybody from HSRP. So the different  
10 federal agencies and the states are having state  
11 coordinators for the topographic side and state  
12 coordinators for the bathymetric side to come up  
13 with people who should participate in a  
14 questionnaire process to identify what the  
15 requirements and benefits are.

16           And I, personally, didn't think it was  
17 appropriate for HSRP to participate in that  
18 questionnaire process, but I could be convinced  
19 otherwise if people here wanted to make a  
20 counterargument to that.

21           Nevertheless, I think that is a  
22 subject that we will want to track, the results

1 of that study on. And so it can go up there as  
2 an item on the list.

3 The other topic, I should probably  
4 have talked to Mike Aslaksen offline on this  
5 subject.

6 But when there were references to  
7 single point of failure on his airplane, on how  
8 close it could have been that he wouldn't have  
9 had any airplane to fly some of this stuff  
10 post-disaster, would you be receptive to having  
11 alternative sources of private sector airplanes  
12 that report weekly on the status of their  
13 availability and who have been previously  
14 contracted to respond within 24, 48 hours kind of  
15 thing?

16 Are you even receptive to having a  
17 backup capability? Or is that just a nonstarter?

18 MR. ASLAKSEN: Absolutely, Dave. In  
19 fact, we've done similar arrangements with  
20 Dynamic Aviation in the past, knowing that that's  
21 a possibility.

22 Typically, we try to plan with OMAO on

1 identifying a backup aircraft during hurricane  
2 season at all times. Sometimes that works,  
3 sometimes that doesn't work just depending on  
4 schedule.

5 But typically we will call when we  
6 know we have a gap and talk to Dynamic or other  
7 providers.

8 MEMBER MAUNE: Yes, I was thinking  
9 along the line of the contract that FEMA had  
10 that's ending next month. That FEMA has had a  
11 five year contract for -- with four prime  
12 contractors.

13 And I know that my team had 120  
14 airplanes with cameras, and which the  
15 subcontractors reported to me and I reported to  
16 FEMA on a weekly basis which of those airplanes  
17 by tail number and camera type would be available  
18 in the coming week in case there was a disaster.

19 And we did that, we've done that. And  
20 I, typically, on any typical week had between 20  
21 and 30 airplanes stationed around the country  
22 that were available on short notice. And there's

1 three other prime contractors that also had major  
2 assets available. And yet we were never used in  
3 the last four years of the contract.

4 But that kind of capability does exist  
5 if you are interested in having a backup  
6 capability with, not just airplanes, but with  
7 different kind of cameras and lidar sensors as  
8 well.

9 MR. ASLAKSEN: Right, I think the only  
10 issue there, really, is the systems we fly and  
11 our work flow are very unique. And that, to have  
12 that redundant capability would be something that  
13 we'd have to scope and/or have a capability to, a  
14 backup system in order to install in a  
15 contractor's aircraft would probably be the best  
16 way ahead.

17 MEMBER MAUNE: Okay, that's all I had.  
18 Yes?

19 MEMBER GEE: That kind of fits under  
20 the disaster response, doesn't it? It's the  
21 details of, I think we talked about maybe that's  
22 kind of public-private partnership and disaster

1 response. I guess, maybe when we flesh out that  
2 details, that's probably where it fits, right? I  
3 guess.

4 MEMBER MAUNE: Okay, that's all I  
5 have. Thank you.

6 MEMBER HALL: I think I'm going to  
7 actually skip the directors because I think this  
8 is for the voting members. There we go, I think  
9 that we're all members.

10 So, Joyce, and then I still haven't  
11 given my feedback.

12 MS. MILLER: There's such, I'm trying  
13 to focus on what we're going to put in the letter  
14 and what we've heard this week, since I'm the one  
15 that usually writes the letter.

16 Okay, we've heard this week blue  
17 economy and how that relate -- and the  
18 transformational infrastructure.

19 We have, and in particular, precision  
20 navigation. And so I think that's an element of  
21 either the recommendation or the letter.

22 Another thing we've heard, and I, it

1 has been so strong in almost every HSRP meeting  
2 that I've gone to, particularly in the disaster  
3 response areas, NOAA's contributions, what  
4 stakeholders need, et cetera.

5 It is not uncommon if we have heard  
6 something that is very specific to an area, while  
7 it may not be a broad recommendation, if there  
8 was a, if there was an overwhelming ask at a, in  
9 an area. And what I heard from this last panel,  
10 they need offshore buoys.

11 MEMBER HALL: I guess the question  
12 right now, is that something that we're going to  
13 do when we're talking about the letter? Because  
14 I'm not sure everything that was said here was  
15 related to exactly recommendations or the letter.

16 MS. MILLER: Right.

17 MEMBER HALL: I think what we're  
18 trying to do is just, kind of, have a path  
19 forward as we move forward. And some of it's  
20 obviously based on what we heard today.

21 So when it comes to what goes in the  
22 recommendation letter, I think that's here. I

1 was trying to make this a little bit faster. I'm  
2 glad that people have had an opportunity to talk  
3 because I know we kind of chomp at the bit  
4 sometimes to get our spear time.

5 But I guess my question for you is,  
6 especially, I know we talked earlier this week  
7 about the education piece. And I know we didn't  
8 hear anything about that, but that's still an  
9 ongoing concern and issue. And is it something  
10 that we need to be paying closer attention to, I  
11 guess, Joyce?

12 MS. MILLER: I wouldn't put that as a  
13 very high priority at this point.

14 MEMBER HALL: Okay.

15 MS. MILLER: I would put, and there's  
16 many things -- what I want to say is there's many  
17 things on this list that we can put a check mark.  
18 We've done something about it, let's keep  
19 listening, but it's not the highest priority at  
20 this point.

21 MEMBER HALL: My plan is to try to  
22 find a way to do that with a survey where, hey,

1 these are things we have agreed we're tracking.  
2 These are things that we think we need to do some  
3 activity on. Here are the types of activities we  
4 want to do, and let's prioritize those  
5 activities.

6 So it will be a little bit of a  
7 different order this time. It might be,  
8 hopefully, still less than a handful of surveys.  
9 But I'm going to work on that, and there might be  
10 a better way to do this, but I agree.

11 But I don't want to lose track but I  
12 don't want to take it off, because there's still  
13 things that, it will pop up in a year and we'll  
14 need to make sure we're tracking.

15 MS. MILLER: Well, so what I'm  
16 prioritizing is important things that I've heard  
17 this week that I think may be because we've heard  
18 them this week. It's not just the letter.

19 But I kind of reorganized my  
20 priorities, basically, what, from what we've  
21 heard in a week. And it's not just from the  
22 stakeholders. We heard from Admiral Gallaudet

1 that the blue economy and -- so I would say that  
2 -- and the other thing I heard very much here is  
3 private public partnerships, and how NOAA can  
4 facilitate that because they're the big players,  
5 one of the big players in the disaster response.  
6 They have many of those good relationships, and  
7 perhaps NOAA can help to facilitate partnerships  
8 across many agencies and the private industries.

9 So I'll have to review my notes more  
10 thoroughly, but those are things that I heard at  
11 this that we may want to address further, or we  
12 may want to address in our letter and comments.

13 MEMBER HALL: Sorry, he's my ride to  
14 the airport. I wanted to make sure I've still  
15 got a ride.

16 I think, following on Joyce, I think  
17 yes, it's great to get those ideas out of this.  
18 And today -- what I heard yesterday was a lot  
19 about public-private partnerships, and the day  
20 before. Today was, to some extent.

21 But there was one key thing that Dr.  
22 Danchuk said, and that kind of, a little bit

1 different than I think what Ed Page was talking  
2 about. But the information sharing and that  
3 attempt to avoid duplication of effort. And I  
4 think that that's something, too, as it goes into  
5 public-private partnerships, but it's also  
6 public-public, right.

7 So she's doing it on behalf of the  
8 state of Florida, you're all doing it on -- based  
9 on what FEMA needs, and that's not always,  
10 sometimes it's federal versus state.

11 I think there is this kind of, this  
12 ongoing theme of information sharing, but with  
13 the idea towards getting rid of those  
14 duplications of effort and having a unity of  
15 effort wherever possible so that you can go do  
16 the other side while they're doing this side, and  
17 that you're getting more coverage.

18 So that was kind of the key thing I  
19 heard today in the meeting and something that  
20 I've heard over and over again that I'd like to  
21 include in our list.

22 And other than that, I've tried to

1 take as many notes as possible. I will be  
2 pinging a couple of you because I was typing and  
3 trying to listen. So if you get a note from me,  
4 it's just looking for a little bit more clarity.  
5 I'll need Dave to actually give me the full title  
6 of that study. I didn't get all the words.

7 But I'll send you each individual  
8 notes. What my plan is to send this out just for  
9 you all to look at. I don't want this to be  
10 paragraphs of written words, but if I'm missing  
11 something and there are a couple places where I  
12 could use some more, two or three words to  
13 describe the issue.

14 And then what I will do is work on  
15 developing kind of the best way forward based on  
16 everything we've talked about, again, with regard  
17 to these are topics that we're tracking, these  
18 are topics we'd like to take action on, and what  
19 actions we'd actually want to take.

20 And so I tried that a little bit with  
21 the first one. And I'm hoping it's just a  
22 process that evolves and doesn't get too much

1 more complicated, but that still helps us and  
2 helps Lynne and the team help get those topics of  
3 interest regardless of region that we're in.

4 And I, yes, the regional flavor always  
5 is helpful and the regional context is helpful,  
6 but sometimes we need it brought up a little bit  
7 higher so that we're not missing the common  
8 thread.

9 So that's my key thing. I am happy to  
10 continue, as I said, to do this portion of it and  
11 feed the committee members or the leadership.  
12 And so hopefully you'll see something with me in  
13 the next couple of weeks. You'll definitely see  
14 this list from me in the next day or two. And  
15 then we'll work on that.

16 And just bear with me as we figure out  
17 the surveying process. And if anybody has an  
18 account they'd like to let us borrow that is the  
19 full Survey Monkey, that would be extremely  
20 helpful. I'm just not at a point in my  
21 business's maturity to be paying that kind of  
22 money.

1           So again, any help we can get on that  
2 side of things would be greatly appreciated.

3           MEMBER THOMAS: I just have one idea.  
4 That enhanced navigational assistance, do you  
5 think we could just put enhanced navigational  
6 assistance to support the blue economy, just so  
7 we get the blue economy in there?

8           Did you? Okay.

9           MS. MILLER: I would also say you need  
10 to put in what's been done, something like  
11 infrastructure paper.

12           MEMBER HALL: It's in the full. I hid  
13 a couple of columns just so we had that up there.  
14 So there's a column that says that.

15           MS. MILLER: Or webinar was done. And  
16 the new members may not have heard that webinar.  
17 So, but --

18           MEMBER HALL: I could use NOAA's  
19 assistance on tracking that. I am not going to  
20 be a meeting tracker, what got talked at whatever  
21 if I didn't make it on to a webinar. So I don't  
22 know if that's something that Lynne can help us

1 with because she's on every call.

2 But I would ask for a little bit of  
3 assistance. My, I don't want to be tracking  
4 every single thing that the committee does. So,  
5 yes.

6 MEMBER MAUNE: Is that it, Kim? Is  
7 that it? I think that's all that the Planning  
8 and Engagement Working Group has, Joyce. You  
9 wanted to go over to the Alaska working group,  
10 did you?

11 MS. MILLER: Ed, is there anything  
12 that you'd like to -- I know you don't have  
13 anything to actually report at this point, but.

14 MEMBER PAGE: No, we're just starting  
15 to get -- anyone else interested, I do have --  
16 Julie Thomas has enthusiastically agreed to serve  
17 on it.

18 I got Larry Mayer, I got Andy. Is  
19 there someone I'm missing? I feel like I'm  
20 missing somebody. But in any case, anyone else  
21 who wants to participate, and I'm certain we'll  
22 keep people apprised over position papers, what

1 have you.

2 But I don't, we'll just call the  
3 meetings when it's appropriate to put something  
4 together. I don't, I'm not, I don't want to put  
5 in a schedule thing.

6 And I did disseminate kind of like a  
7 draft summary of the issues and points in  
8 bullets. We can start that dialogue and others  
9 can add to it and then we can wordsmith the heck  
10 out of it and come up with a position paper and  
11 kind of give update -- this thing, talk about  
12 blue economy, talk about Polar Code, all those  
13 kinds of things and the role that NOAA has.

14 Kind of fulfill those new expectation  
15 requirements and what have you, so. And then  
16 I'll be surprised that NOAA just kind of  
17 reinforced where I think that you're going  
18 anyway, but kind of tuned it to what's going on.

19 So I think we're off to a slow start,  
20 but we're moving. We're getting traction, moving  
21 forward.

22 MS. MILLER: You are aware that Lawson

1 and the working group did submit a report three  
2 years ago, would be my guess. So revisiting that  
3 might be useful.

4 Okay, it's ten to three. This is a  
5 good opportunity. How many people are leaving  
6 early today? One, two, four -- okay, I need  
7 everybody to really dig in at 3 o'clock. Let's  
8 take a 10 minute break.

9 We have one hour to decide at least  
10 what our recommendations should be and what --

11 (Off mic comments.)

12 MS. MILLER: Okay, Lynne tells me a  
13 lot of people are leaving at 3:00. Those who are  
14 leaving --

15 (Off mic comments)

16 MS. MILLER: Okay, listen up, please.  
17 Those who are leaving at 3 o'clock, I want you to  
18 tell me what recommendations you think we should  
19 give, recommendations we should give to the  
20 Admiral, or to the Administrator based upon what  
21 you've heard today. Give me two or three. You  
22 can do one as well. So, Kim, you're leaving?

1                   MEMBER MCINTYRE: I can go here. I'm  
2 ready because I'll be leaving early as well.  
3 Whenever you're ready.

4                   I, the one thing I think to include is  
5 the, for lack of a better word, I'm going to call  
6 it the reciprocity with FEMA when NOAA is  
7 providing support to other agencies' missions.

8                   I think it was good that we learned  
9 about the blue economy and the infrastructure,  
10 and that we'd like to hear more on that.

11                  MS. MILLER: So reciprocity, do you  
12 mean funding?

13                  MEMBER MCINTYRE: Yeah, I mean, I  
14 guess reimbursement. I mean, it was what Glenn  
15 had covered in his lunchtime presentation. That,  
16 I just view that as a big issue because it seems  
17 to reallocate NOAA resources to projects that are  
18 very important and need to be taken care of very  
19 timely. But it does seem that it can detract  
20 from the budget and other missions that are  
21 important.

22                  And then, again, just the follow-up on

1 the precision navigation and the fact that  
2 Secretary Ross was mentioning that, that HSRP  
3 continues to support the precision navigation.

4 MS. MILLER: Should I perhaps ask how  
5 many people think we should talk about the  
6 reimbursement from FEMA? Hands? One, two,  
7 three, four, five --

8 MEMBER HALL: Lynne has provided us  
9 with a paragraph on that.

10 MS. MILLER: Okay.

11 MEMBER HALL: Yes. No, so he's giving  
12 us something so that's why, yes. I totally  
13 agree. No, that's agreed.

14 MS. MILLER: Hands again, how many,  
15 everyone? One, two, three, four, five, six,  
16 seven, eight, nine, ten, eleven.

17 Okay, not voting.

18 Okay, so that's 10 out of 10, or 11  
19 out of 11. Okay, precision navigation in the  
20 blue economy.

21 It should be included as a high level  
22 recommendation.

1                   MEMBER MCINTYRE: That's my question,  
2 I mean --

3                   MEMBER KELLY: To maximize the  
4 awareness of the products and services that  
5 contribute to this economic engine that spans --  
6 okay, I think that the thing that we're doing is  
7 to recommend that the blue economy discussion be  
8 progressed as far as possible in light of the  
9 services and products that create the economic  
10 engine across the United States, both  
11 commercially, environmentally, recreationally,  
12 and that this is, you know, needs to have a  
13 broader recognition of the value of these and  
14 should be aimed toward creating funding and  
15 support.

16                   MS. MILLER: May I ask you to write me  
17 a sentence on that, please? But actually, we  
18 already have a brief paragraph from Glenn on  
19 that.

20                   MEMBER KELLY: I think it just never  
21 hurts to repeat the boss's phrasing, including  
22 the blue economy.

1 MS. MILLER: So were we all agreed on  
2 that? Okay, all right. Lynne, or Kim?

3 MEMBER HALL: So less of an actual  
4 recommendation bullet point, but I think one of  
5 the things that we can stress in here, and I  
6 think it was great to hear again from Dr. Danchuk  
7 about the -- and actually Congressman Jacobs --  
8 the idea that these kind of extra-regional or  
9 less than going local and staying local, that we  
10 actually, as HSRP, are a great conduit for NOAA  
11 to get that exposure.

12 So when you're looking at, and I know  
13 poor Lynne has to count how many recommendations  
14 we have, so I've just taken one away from our  
15 metrics, our cruddy metrics.

16 But I think one thing that we can say  
17 to, that we add value, is that we provide a venue  
18 for that. And I think we should continue to ask  
19 for that when we go into panels. Where it's not  
20 just somebody in their gweduc or whatever the  
21 issue is, but that we look at it more regionally,  
22 or more at that level where the compacts and the

1 other agreement, because I think that's very,  
2 very helpful.

3 We have Sal on the committee and we  
4 always hear about the cruise lines, which is one  
5 of the reasons when I was with CLIA I joined too  
6 so that it could be a broader swath of what  
7 people are asking for.

8 And so I think that we need to do the  
9 same thing as a panel. And I think that we can  
10 stress that in a letter as kind of a pat on the  
11 back for both NOAA and the HSRP, that we provide  
12 that venue and that we applaud those efforts in  
13 some way.

14 MS. MILLER: I guess I would say I  
15 think that's more for the summary than a high  
16 level recommendation.

17 MEMBER HALL: It's not a  
18 recommendation, but there's context that happens  
19 in these letters, right. So I can send you a  
20 sentence on what I think as we set it up, because  
21 not the, the whole letter isn't just a whole  
22 bunch of recommendations.

1           But HSRP was great to, happy to hear  
2           from these kinds of organizations because it  
3           provides this kind of access for NOAA, for the  
4           panelists and kind of recognize what Ms. Jacobs  
5           said to us.

6           I think that's actually a really, I  
7           think that happens in all of our meetings. And  
8           she just said it succinctly for us. So it's not  
9           a recommendation, but I think it's, it gives some  
10          context to our meeting and what, and to the  
11          recommendations themselves.

12          MEMBER MCINTYRE: Here's a way, maybe,  
13          that you can tie it into a recommendation is  
14          maybe something along the line that the panel was  
15          pleased to learn that regional planning  
16          authorities use NOAA expertise and products in  
17          responding to disaster response and planning, and  
18          we recommend that NOAA continue to develop and  
19          participate in those relationships.

20          MEMBER KELLY: And I would take that  
21          even one step further, that the recommendation to  
22          enhance NOAA's response capability.

1                   MEMBER HALL: I'm just going to  
2 clarify. That is absolutely spot on. But part  
3 of it was that the acting locally but thinking  
4 globally concept that she was talking about is  
5 what I meant, in that, we can do a great job of  
6 making sure that we're exposed to, and that  
7 NOAA's exposed to that, through our panels and  
8 through our work.

9                   And I think to tell the Administrator  
10 that we aim to do that and we accomplish it to  
11 some extent at this meeting and that we will  
12 continue to pursue opportunities like that, and  
13 yes, NOAA should as well.

14                   But part of it is showing our value,  
15 right. And I think our value in providing a  
16 great platform for these folks and that we're  
17 listening and we're engaged really is something.

18                   We're not going to recommend that,  
19 we're just going to tell Admiral Gallaudet that  
20 we've done it and that we should take some credit  
21 for it.

22                   MEMBER PAGE: Can I just add, I think

1 I heard the word "resilience" a lot. And the  
2 blue economy, basically, was broken for a couple  
3 days until NOAA fixed it, or instrumental in  
4 fixing it.

5 So in this context of, if we want a  
6 blue economy, we didn't have a blue economy for a  
7 couple days. You know, Mother Nature decided to  
8 disrupt that and NOAA decided to get -- well, not  
9 decided -- jumped in along with many other people  
10 and restored it.

11 So that nexus, I mean, the resilience  
12 is important. And I never really got that whole,  
13 that context until I listened to those people and  
14 realized how they scrambled to get everything  
15 back online again. And every day that's broken  
16 that's a major environmental -- not major. Well,  
17 environmental impact, but, I mean, really it's,  
18 it impacts our economy.

19 So if we can get that little -- the  
20 capture I get from that is how instrumental NOAA  
21 was and the resilience thing. And I never put  
22 that, I never saw that.

1           So it's not a bad thing to showcase to  
2 others, another value added of what NOAA does.  
3 It's not -- happens every day. And I'm not even  
4 worried because I'm from Alaska. I don't really  
5 pay, you don't really have the -- in Brazil. We  
6 don't have all, we have a very calm, easy  
7 environment and that's why I live there, because  
8 I'm a wimp.

9           But no, these horrific events are  
10 basically, are really a thing that happened  
11 down here a lot in the Gulf and the eastern  
12 seaboard. And we're probably not as much  
13 aware nationwide, right, as Portland. So  
14 that's one of my takeaways, that maybe we  
15 could mention that.

16           MS. MILLER: No, I agree that it's  
17 very important. It's just that I have been,  
18 essentially, browbeaten into a one-page letter  
19 to the Administrator with our highest  
20 recommendations, and then the summary. And so  
21 -- yeah, so that's the reason for my hesitance  
22 to put that as a, as our highest level

1 recommendation. And let's continue the  
2 conversation. I mean, how many people think  
3 that should be one of the highest level  
4 recommendations from this?

5 RDML SMITH: Can I jump in here  
6 just a little bit, because I did happen to  
7 review our, sort of, terms of reference this  
8 morning. And I think that hydrographic  
9 services can be stretched pretty broadly.

10 But, and I love the panel today,  
11 and there's a lot of good use of our  
12 information. But it's really not for the  
13 application for which this panel was put  
14 together.

15 And so I'm a little leery of us  
16 diverting too far off into resilience  
17 applications of our data, considering that  
18 they're not strictly hydrographic services as  
19 defined in the statute.

20 MS. BLACKWELL: This is Juliana.  
21 So all the information about where the land  
22 meets the water and what the levels of the

1 water are and what the heights of the things  
2 on the shore, and whether it's lidar through  
3 imagery or through update of the datums, all  
4 of those things connect.

5 And I think that it wasn't, but  
6 little, short time ago we were calling things  
7 differently. We weren't saying blue economy.  
8 We were talking about coastal -- there was  
9 coastal resiliency -- coastal intelligence.

10 And whatever you call it, I mean,  
11 it's the same basic data and information that  
12 we are trying to provide and trying to  
13 improve. And coastal resiliency, I think, is  
14 absolutely within the purview of what we do as  
15 our mission, whether it's the primary or  
16 whether it's the secondary application of the  
17 data and the information that we provide.

18 Maybe in Shep's world it's about  
19 the chart and that's it. But all that data  
20 that's collected is used in so many other  
21 ways. In particular, I think from my  
22 perspective with NGS, focusing just on the

1 coast, that is where we see a lot of the  
2 connections here with the other offices that  
3 are involved in this panel.

4 I could go on and on about what the  
5 impacts are of geodesy and all this  
6 information inland with inland hydrography and  
7 flood plain mapping across the United States.  
8 I'm not going to go into that as far as  
9 resiliency, not just on the coast, but  
10 everywhere.

11 But I think at a minimum, that this  
12 panel should definitely be interested in  
13 coastal resiliency.

14 MS. MILLER: Rich?

15 MR. EDWING: No, I think Juliana  
16 said it very well. I don't agree with the  
17 Admiral on this. In fact, in the HSIA there's  
18 a provision there that encourages us to use  
19 our services for coastal resource, in support  
20 of coastal resource management. So it's right  
21 there in the statute, so.

22 Now I think it's not our job to --

1 they were talking this, the panel this morning  
2 was talking about they're looking for groups  
3 to be set up elsewhere. That's more of an  
4 ocean and coastal management office  
5 responsibility.

6 But we certainly provide the data  
7 and a lot of the tools that they need to do  
8 what they're doing. So I think it's within  
9 the purview of the panel.

10 MS. BLACKWELL: And I have one  
11 other follow-up on that. I'll tell you one  
12 thing that's going to happen. When we roll  
13 out these new datums in 2022 or whenever,  
14 depending on how soon we can get them done,  
15 all those people up there that have geospatial  
16 data and all those people that we have not  
17 heard from, they're all going to be, or at  
18 least the federal, the federal entities and  
19 probably a lot of the state entities, are  
20 going to be required or encouraged strongly to  
21 have all of that information on the new  
22 datums, which are going to be much more

1 accurate and it's going to make -- it's going  
2 to make life much better in the long run.

3 But they are all going to struggle  
4 with getting their data sets transformed into  
5 the new datums and integrating all that  
6 information they have. That is going to be a  
7 huge lift.

8 And it's a little too premature to  
9 be telling everybody and scaring them right  
10 now. But the tools are being built by NGS to  
11 help them.

12 And we're working with the private  
13 sector to make sure that the information, the  
14 geodetics behind the, in the black box are  
15 going to be available for software and private  
16 sector companies to include into their  
17 technology and into their software.

18 But everybody who's doing  
19 geospatial data is going to be affected by the  
20 new datums. So I think that that is also  
21 something, as -- maybe a year from now, maybe  
22 some time at some point, we're going to have

1 to step up that education, especially in this  
2 environment to educate those who have data  
3 that there's going to be a change coming, and  
4 that there's going to be a massive, a massive  
5 change in the datums that they're going to be  
6 using after 2022.

7 MS. MILLER: And I would add to  
8 that the paper that all latitudes, longitudes  
9 and heights will change. Those of you who  
10 haven't read it, it was an eye opener for me.  
11 That was for sure. And Gary was a major, he  
12 -- and, of course, Julianna and so yes, I  
13 agree.

14 On this topic, does regional  
15 partnerships, coastal resiliency and tying it  
16 with private public partnerships, does that  
17 make sense? Or is private public partnerships  
18 a separate issue?

19 MEMBER THOMAS: So my tagline has  
20 been federal, state, academia, and industry  
21 partnerships as far as the private public  
22 sector in Long Beach. That kind of covers,

1 because we get state government, which  
2 actually contributes to our LA Long Beach.

3 And so I don't like to leave them  
4 out. And so I, that's why I don't just say  
5 government or public. I think it's really  
6 important sometimes to spell it out. But  
7 there's so many different ways to acknowledge  
8 that.

9 RDML SMITH: I think we need to be  
10 clear on our definition of public-private  
11 partnership, because in the Trumpworld that  
12 means toll roads. Right? That means public  
13 service provided at private expense with a  
14 revenue stream that doesn't come from the  
15 government.

16 And that's not good stakeholder  
17 coordination, it's not giving grants to  
18 academic institutions, it's not contracting  
19 with government funds to accomplish a  
20 government end.

21 That has a very specific meaning  
22 and think toll road, right. And so I think if

1 we're going encourage all those other things  
2 which also are good, we just need to be clear  
3 on our definition so that we're all not  
4 thinking about what this is in a different way  
5 or that we don't toss it up as a great example  
6 to the administration in a way that they would  
7 then say, what are you talking about? This is  
8 not what we meant, because there's very  
9 specific meaning to that.

10 MEMBER KELLY: I would suggest, and  
11 similar to what you said before, Admiral, we  
12 have to use a very sharp pen because the role  
13 of this panel is advising NOAA regarding their  
14 role, not -- and I think the services and the  
15 products that we do how NOAA can use  
16 contractors, other things, that's all germane  
17 to our mission here.

18 But when we start talking about how  
19 the counties work together with this guy, I  
20 think that's beyond our purview, and we need  
21 to leave that alone. So I think we will be  
22 most effective if we can kind of get that

1 laser type of targeting on the  
2 responsibilities of this panel to advise NOAA.

3 And I'd say as far as this response  
4 capability, I would try to keep it as narrow  
5 as that it's highly essential to everyone else  
6 and therefore no one needs to up their game as  
7 far as faster, better, cheaper ways to pre-  
8 train, ways to pre-position that we need to  
9 improve that.

10 You know, how these other groups  
11 are going to interface or who gets invited to  
12 their MTSRU or anything else is interesting  
13 but -- my daughter has an expression, not my  
14 monkeys, not my circus. And I like that, you  
15 know, we'll stay away, it's not our problem.

16 RDML SMITH: I just was -- I guess  
17 on the issue of scope here I think it's, I  
18 would just invite you all to look at what I'm  
19 looking at which is the law that authorized  
20 this panel.

21 And it's not that I -- I don't  
22 disagree with Juliana that all of that stuff

1 is important, nor that our services in some  
2 ways are related, particularly geodesy but I'm  
3 not sure that that's the central focus of  
4 this. If you look at NOS and you start to  
5 think about how NOS is usually thinks of its  
6 buckets of focus areas, when they talk about  
7 the resilience programs within NOAA, it's  
8 usually not us.

9 And it usually is Coastal Zone  
10 Management, it's usually resilience grants,  
11 and those are not our programs. So I don't --  
12 I think that it's important for us to talk  
13 about these things but if we start to talk  
14 about ourselves as a resilience program, we  
15 really should be including all of those  
16 programs in this conversation as well because  
17 that's the larger context within NOAA.

18 And if we're going to advise NOAA  
19 on those programs, then those programs should  
20 be included in this conversation.

21 MEMBER KELLY: I think we're really  
22 restricting to the data and the services,

1 products themselves, not how they're used but  
2 in recognition that they're used we need to  
3 find better ways to refine those products and  
4 services.

5 So you know, like I say, I don't  
6 want to get involved in recovery. I don't  
7 think that's our game. But I do think the  
8 products, the services, the data that we make  
9 available is what we should be talking about.  
10 So I'm, you know, kind of agreeing with you.

11 We shouldn't go past that line, but  
12 we do need to look at internally the NOAA  
13 functionality. How it's used, we have to be  
14 cognizant it has value because it's used and  
15 the quality and the timeliness are therefore  
16 important, but we don't want to get involved  
17 in any of that other piece of it. So I think  
18 we're really saying the same thing.

19 MR. EDWING: Well, I was going say,  
20 yes, I don't think either Juliana or I are  
21 saying we're going to refer to ourselves as  
22 resilience programs. But those resilience

1 programs can't do what they need to do without  
2 the geospatial information data product that  
3 we provide, and that's what we need to  
4 emphasize, just what -- yes, right.

5 CHAIR MILLER: So based upon this  
6 NOAA provides products, data, and services or  
7 NOAA Nav Services, writ large, all of you guys  
8 provide services that -- to disaster response,  
9 which was one panel, and coastal resilience.  
10 What would be our recommendation there?

11 MEMBER KELLY: That because of the  
12 criticality of that, it's imperative that NOAA  
13 find ways to improve the timeliness and the  
14 quality of the data and services that are made  
15 available and that would include training,  
16 exercising, public/private as far as training  
17 people, making contracts, contractors available,  
18 secondary, tertiary backup units. And, you know,  
19 to perform that function to insure that those  
20 tools are available, not how they're going to use  
21 them but that we make the tools and the  
22 capability available, and we've heard that

1 because it's so critical we probably need to up  
2 our game for timeliness and accuracy on that  
3 because we know they're critical tools. But not  
4 get too deeply involved.

5 We just say we know these products and  
6 services are essential to the folks who are  
7 engaged in recovery, response, and planning, and  
8 it is therefore incumbent on NOAA to improve the  
9 --

10 CHAIR MILLER: Up the game.

11 MEMBER KELLY: -- the deliverable.

12 MEMBER PAGE: Well, if I could add  
13 something. You know, I'm the one who  
14 unfortunately brought this up, the resiliency  
15 thing and I'm starting to realize, I'm seeing  
16 where the Admiral's coming from. And  
17 unfortunately the last two days, so much of this  
18 discussion is about the storm and resiliency and  
19 what NOAA did in that capacity. But the first  
20 day is probably much more relevant to HSRP's  
21 role, and that is with respect to the PORTS  
22 concept which is just providing that information

1 to facilitate the blue economy.

2 So I can see where, I can see your  
3 apprehension that really, you know, if you look  
4 at HSRP and our role or focus or whatever, I just  
5 got so overwhelmed, we're like, oh god thank you  
6 for saving our lives, or whatever, getting our  
7 port operational but I guess as a practical  
8 matter, I mean, your service is certainly a  
9 component of that but it's not your core thing.

10 And it's just one of many that showed  
11 up, and you know and obviously, we heard how your  
12 forecasting service did a great job, but that's  
13 not really your, our bandwidth. It's great, but  
14 we don't really, not here to endorse or give  
15 suggestion to the National Weather Service.  
16 We're here really to talk about hydrographic  
17 services so I can understand, well I'm kind of  
18 going down this road listening to all this stuff.  
19 I'm kind of getting focused on it.

20 So maybe we're diluting our, you know,  
21 what we should really looking at and reinforcing  
22 and advocating for is more tools to facilitate

1 the blue economy, so you get the bigger and  
2 bigger ships without incident, you know, flying  
3 all over the United States and Alaska. We're  
4 part of the United States aren't we, I'm not  
5 sure, are we in Alaska?

6 CHAIR MILLER: Ed Page.

7 MEMBER PAGE: Just something to do with  
8 the -- is this, we're just debating whether we  
9 should have a recommendation or not about this?  
10 What are we -- we've kind of gone --

11 CHAIR MILLER: Yes, I mean it started  
12 out when Kim said regional partnerships, and we  
13 should make a recommendation about that. I think  
14 this subsequent discussion has said that you  
15 know, and the resiliency, and so forth.

16 That's not our role, that the role is  
17 provide products and services that help with  
18 disaster response and coastal resiliency, and one  
19 of the concrete things I heard in this was we  
20 need more current meters, and we need assets,  
21 which is appropriate, I think.

22 MEMBER KELLY: So I think, you know,

1 the return on investment is that we're collecting  
2 this data and this data is being used by many  
3 people for many different functions. So the  
4 return on that investment to place those sensors  
5 and to have the people analyzing that data that  
6 it can be used, yes, to bring in big ships and  
7 handle more cargo. It can bring in cruise  
8 passengers, it can increase safety, it's keeping  
9 the environment happy, and it's also being able  
10 to be used for you know, disaster recovery and  
11 response.

12 It means the return on the investment  
13 is multi-fold, multifaceted here and that it just  
14 further justifies moving this program ahead with  
15 PORTS, which is infrastructure, and we can  
16 justify it by return on investment. I mean, they  
17 were two buzzwords the Admiral said, and by god,  
18 we have exactly what he wants. Let's put it in  
19 his lap and let him run with it.

20 MS. BLACKWELL: So along those same  
21 lines, one of the things we talked about a few  
22 years ago was socioeconomic studies, and we

1 didn't really have expertise on the panel  
2 although we had an economist come in and talk to  
3 us about some studies that had been done. I'm  
4 just throwing this out here for the awareness of  
5 the new panel members.

6 I'm not saying do a socioeconomic  
7 study, whatever, but I think getting real numbers  
8 that talk to the value of the products and  
9 services amongst our offices is something that  
10 maybe you all would want to consider and come up  
11 with some ideas about, you know, what should we  
12 be doing on those numbers.

13 And I think we all have been involved  
14 in different studies, but maybe that's something  
15 that we could bring up again. Not as a  
16 recommendation for this letter or anything like  
17 that but just maybe as a topic for a future  
18 webinar or future whatever.

19 CHAIR MILLER: In fact, that  
20 recommendation is the last one in our  
21 infrastructure paper, is conduct studies to, you  
22 know, to give the return on investment numbers.

1 Yes.

2 RDML SMITH: And I think that's what  
3 this 3D Nation study is intended to do, so if we  
4 want to call attention to that I think that would  
5 be helpful because we are at the point of trying  
6 to get participation and credibility to that  
7 study.

8 CHAIR MILLER: So as Ed phrased it,  
9 NOAA products and services -- Nav Services,  
10 products, services, et cetera, the importance of  
11 that. Quantify return on investment such as  
12 PORTS, et cetera, and maybe including that more  
13 sensors are needed down here, and we got direct  
14 requests for particular types of sensors, just as  
15 a -- maybe as part of the summary rather than as  
16 part of the recommendation. There was a hand,  
17 yes, Ed.

18 MEMBER PAGE: About that, I mean, part  
19 of what's driving PORTS for Miami is larger  
20 ships. Well, that's not unique to Miami.  
21 There's larger ships that are going to every port  
22 around the country. I guess the point of the

1 fact is it is showing it's valuable. We heard  
2 that -- you know, everyone thought this was the  
3 best thing since sliced bread, whatever.

4 But in reality, many other ports have  
5 the same challenges. The ships are getting  
6 bigger, the tolerances are getting less and so  
7 this model, you know, has obviously proven  
8 itself, you know, in Miami and we can fully --  
9 suggest this continue on around the country  
10 because these ships aren't just going to Miami,  
11 they're going to many other ports. Something  
12 along those lines.

13 CHAIR MILLER: That actually is in the  
14 precision navigation and blue economy because  
15 that is already at the Secretary's level so, yes.  
16 Okay, so what we have on the table right now is  
17 reimbursement from FEMA, which was Anne's  
18 suggestion. Precision navigation and the blue  
19 economy, economic engine, et cetera.

20 Generally, NOAA products, written  
21 larger than just precision navigation, the  
22 products that co-ops and NGS and Nav Services

1 such as the NRTs and things like that, provide  
2 during disaster response and provide services for  
3 coastal resiliency, so those are the three broad  
4 topics, anybody else leaving soon? Well, Anne  
5 has already spoken. Okay, who -- I mean, we can  
6 have more than three, and then we'll just have to  
7 whittle it down so would anybody else like to  
8 propose another high-level topic?

9 (Off-microphone comments.)

10 CHAIR MILLER: Oh, break. Well, I was  
11 trying to get people, I was trying to get things  
12 in -- okay.

13 (Whereupon, the above-entitled matter went  
14 off the record at 3:23 p.m. and resumed at 3:45  
15 p.m.)

16 CHAIR MILLER: Okay, let's try to  
17 bring this to a close. I'd like to do our -- get  
18 our letter set. Lynne wants to talk about where  
19 the next meetings are and Lynne's gone, so let's  
20 get our letter settled.

21 Okay, the three suggestions I have  
22 right now is the FEMA reimbursement, precision

1 navigation and the blue economy, NOAA products  
2 data services, et cetera that we just discussed.  
3 I'm open for other suggestions and we can -- and  
4 if it doesn't go in as a recommendation, it can  
5 go in as part of the discussion, later.

6 What we do is we put the three  
7 recommendations first or two or three, mention  
8 the issue papers, and then we provide a summary  
9 of the meeting. And by the way, usually by this  
10 time we're well along on both of those, but we  
11 are not this time so, suggestions. I'm very much  
12 open for suggestions.

13 MEMBER KELLY: Joyce, I don't know  
14 about secondary channels and charting, the  
15 secondary channels that we've heard about.

16 CHAIR MILLER: Going aground in the  
17 channels?

18 MEMBER KELLY: Yes, yes being aground  
19 in the channel and the concept that there are  
20 many, we've had many reports of secondary  
21 channels with -- I don't know what's the best  
22 word, I don't want to --

1 RDML SMITH: In smaller ports.

2 MEMBER KELLY: -- yes, or Intracoastal  
3 waterways. I mean, that's pretty significant.  
4 You know, we heard about that in Charleston. You  
5 know, where everybody knows where the island in  
6 the middle of the channel is. And you know, and  
7 say that, you know, out of date or insufficient  
8 charting that needs to be addressed and  
9 rectified.

10 Now, we know there's something already  
11 underway but, you know, it just needs to be a  
12 deliverable. It's something that we've been made  
13 aware of that is potentially dangerous even, and  
14 you know, we just should be on record with that.  
15 And I don't know if that makes recommendation or  
16 just part of the summary. I can go either way  
17 with that, but it's got to be.

18 CHAIR MILLER: I agree, we need to  
19 saying something about it. It goes back to an  
20 existing issue paper about -- well, it was about  
21 charting two standards in ports, but it's very  
22 much a similar issue in that the Army Corp is

1 technically responsible for the ICW. So, but we  
2 will put it in for sure.

3 MEMBER KELLY: The maintenance of the  
4 channel is one thing, the charting is another and  
5 it kind of goes hand in fist but I think, you  
6 know, we have to focus on the NOAA piece of it,  
7 the charting of all of that.

8 CHAIR MILLER: Right.

9 MEMBER PAGE: Another issue I was  
10 thinking of was the other day when we did the  
11 PORTS, and I think, I know this obviously is  
12 something NOAA's also interested in so I'm not  
13 trying to push for something that they're not  
14 interested in. But I think some discussion about  
15 -- and let me frame it for a second.

16 You know, when I ask, you know are you  
17 using AIS to get this information, I kind of get  
18 a blank stare from the pilot and from the captain  
19 of the port, and so what bothers me and which  
20 I've seen in other places is that you really, I  
21 think we've all heard the bridge team management  
22 concept that not one person has all the

1 information, that basically the bridge team is  
2 used.

3 And what we're finding out and I've  
4 been seeing in Alaska anyway is that the pilots  
5 will have their little iPhone with more  
6 information than anybody else on that bridge on  
7 currents and tide and wind or whatever, because  
8 this information is not integrated into the  
9 display system. And right now that would be AIS  
10 as a way of providing that, there are other ways  
11 of doing it in the future, what have you.

12 But I think that -- but I know the  
13 Corps of Engineers has been working this really  
14 hard, this issue. And I've had some -- Brian  
15 Tetro who I'm sure you know, Rick, right. And so  
16 -- and in other areas I know that down in San  
17 Francisco they're doing the America's Cup and now  
18 we're doing up in Alaska but I think, you know,  
19 some pressure, you know that NOAA should engage  
20 the Coast Guard in moving forward and providing  
21 the capabilities for them, for NOAA, for the  
22 PORTS system to utilize the AIS system to

1 transmit information.

2 That's the intended application of  
3 this technology, and the Coast Guard's just been  
4 dragging their feet, oh, I don't have protocols.  
5 You don't know, but they shouldn't drag their  
6 feet anymore. Europe's ahead of the game, other  
7 parts of the country are, and here's an agency  
8 that's trying to disseminate information to the  
9 maritime community, and that's one of the  
10 efficient ways, more efficient ways actually, in  
11 some cases, to get that out to the bridge teams.

12 So I can come up with a sentence on  
13 that, but I think that, you know, that NOAA  
14 should urge the Coast Guard to move forward and  
15 take advantage of this AIS technology and provide  
16 that as the capability for you getting  
17 information out to aid the blue economy.

18 MEMBER THOMAS: Can I just say I  
19 second that? I've been dealing with the VTS in  
20 San Francisco on exactly that issue for two years  
21 now. So they are dragging their feet.

22 MR. EDWING: I was going to second the

1 motion, but now I'm going to third the motion  
2 because -- and, you know, we've been working with  
3 them for years, we've been, on our side we've  
4 been ready for years and my understanding is that  
5 they are very, very, very close but I just don't  
6 know why they're not taking that last step.

7 MEMBER PAGE: Well, an anecdotal one,  
8 in LA/Long Beach at one point they had all that  
9 capability to do that and they were trying to get  
10 a hold of a ship that was steaming through and  
11 basically turned off their VHF radio because they  
12 had all the chatter, and they could not get a  
13 hold of the ship to give them information as they  
14 were making an approach that was going too fast  
15 or something was of concern to them, to the point  
16 where they finally got frustrated and they said,  
17 I know we're not authorized to do this but they  
18 sent the message to them on AIS.

19 They answered right up. You know,  
20 because they didn't have all this noise and  
21 clutter with AIS, it showed up. The Coast Guard  
22 wants to know, you know, contact me, you know.

1 So, I mean, it's time.

2 MR. EDWING: And we have new  
3 leadership on both sides now. So it may be very  
4 timely to remind. And we have a very enthusiastic  
5 acting head of NOAA, I think, who would actually  
6 take this and run with it so and do so, yes.

7 MEMBER DUFFY: I have a question, so  
8 the -- I want to make sure I understand the  
9 status of what we prioritized earlier, like the  
10 partnership or the collaboration between NOAA and  
11 the Corps of Engineers. Is that recommendation  
12 for future studying, preparing a paper, or -- I'm  
13 suffering, I call it MBS, mush brain syndrome  
14 from being in a meeting all day long and had I  
15 not had that cup of coffee I'd have probably been  
16 quiet.

17 The datum conversation scares the tar  
18 out of me for a lot of reasons on the Mississippi  
19 River, but that's the one question that I want to  
20 ask just so I understand as, you know, I can  
21 throw the new card up a little bit. I'm a little  
22 lost in the direction, and I would just like to

1 understand. Thank you.

2 CHAIR MILLER: Okay, what Kim did was  
3 review things that are sort of on our, if you  
4 will, our bucket list, you know. Okay, these  
5 things have then come up. Both the datum issue,  
6 and by the way, I just noticed all the papers, if  
7 you've got a nice long plane ride back, all the  
8 papers are in your package. Okay, so pull them  
9 out before you throw everything else away. But,  
10 so both the datum latitudes, longitudes, and  
11 heights will change.

12 That's the one and let's see, I'm  
13 suffering from senior moments and mush brain as  
14 well. And the other one that you mentioned, the  
15 Corps partnership, that is also, and that is  
16 something like -- I'd have to look it up. It's  
17 there; we have written papers on those. We can  
18 update papers. We can bring it up as a  
19 recommendation. Usually, those things have been  
20 a recommendation as well as a paper in the time  
21 we made them.

22 There is nothing that says we can't

1 re-recommend something if we think it's important  
2 enough, okay. What we're working on right now is  
3 what we're going to put in this letter, okay.  
4 Does that help clear it up? Okay.

5 MEMBER THOMAS: So I just have two  
6 comments as far as the letter. One is, do we  
7 want to put in a statement that says we're  
8 pleased that the Ocean Forecast System has been  
9 developed and look forward to its release around  
10 the country or something, I don't know. Do we  
11 want to make a comment about the model that's  
12 coming out from Coast Survey and CO-OPS?

13 (Off mic comment)

14 MEMBER THOMAS: Right, and nobody's  
15 been --

16 RDML SMITH: Want me to say it again?  
17 Some of the OFSSs have been around for ten years  
18 or so, the WCOFS which is the data assimilation  
19 which is very exciting but maybe, may I suggest  
20 that --

21 MEMBER THOMAS: We -- I know it may be  
22 just a West Coast thing, but I think that that

1 hydrodynamic modeling will be really good for  
2 going through the precision nav as we go forward,  
3 and so I see it being actually tied into that and  
4 maybe it's because I'm West Coast and we haven't  
5 had a really good hydrodynamic model there, but I  
6 think that that will be a really positive thing  
7 going forward. So, I didn't know if we wanted to  
8 just include a bullet on it.

9 CHAIR MILLER: Since it really wasn't  
10 discussed much in this meeting --

11 MEMBER THOMAS: Okay.

12 CHAIR MILLER: -- what I would suggest  
13 is hydrodynamic modeling seems to be like a new  
14 exciting topic.

15 MEMBER THOMAS: To put it on for the  
16 next one?

17 CHAIR MILLER: Well, it may be worth a  
18 webinar. I don't know anything about it, you  
19 know.

20 MEMBER GEE: I think that's something  
21 we can take onboard, I was -- we were really  
22 looking for -- that's July I guess, as a

1 technical working group. But that would be  
2 interesting, yes. So if maybe, between yourself  
3 and Rich, that would be great.

4 MR. EDWING: So one way we could  
5 handle it is, for the directors' updates at the  
6 next meeting we could go through that because  
7 I've said there's been a number of paradigm  
8 shifts as we've developed the models. But also  
9 we do have a five-year plan, but we've really  
10 never made the five-year plan public. So we  
11 could update that and provide that to the panel  
12 and have you guys provide feedback. So I think  
13 it would be important to kind of have that  
14 briefing along with that five-year plan, so you  
15 have the full context.

16 MEMBER GEE: And we have had some --  
17 John Kelly gave us a brief, the technical working  
18 group, it was like, I think, last year sometime  
19 gave us a brief on nowCOAST and what.

20 MR. EDWING: The nowCOAST, yes.

21 MEMBER GEE: Yes, all the --

22 MR. EDWING: So we don't really

1 include the nowCOAST along with the hydrodynamic  
2 models.

3 MEMBER GEE: Right, no, but it was  
4 kind of --

5 MR. EDWING: Okay, yes.

6 MEMBER GEE: Something that we hadn't  
7 totally forgotten --

8 MR. EDWING: Okay.

9 MEMBER GEE: General comment now for  
10 the letter, we talked about the other day about  
11 how we're all pleased, I think, to hear Admiral  
12 Gallaudet and hopefully, that's kind of this is  
13 just the things that go in the letter, but we'd  
14 said at the time as we were really excited about  
15 his vision and enthusiasm, we'd like to see more  
16 details eventually.

17 Now I don't know how we kind of will  
18 you know, is it worthwhile putting that into the  
19 letter when it comes to we, you know, the panel  
20 would obviously like to stay engaged in any new  
21 developments on the, you know, further details.  
22 We would like to be, you know, aware of them if

1 they can, certainly. Whether that's in the  
2 letter or not, I mean, I think we would. That's  
3 what we discussed.

4 RDML SMITH: Can I make a suggestion  
5 on that and that is by way of a free invite to  
6 the next meeting to appreciate his participation  
7 here which I know we would do that anyway.  
8 Appreciate him here and also say that we look  
9 forward to further discussions with him at later  
10 meetings.

11 CHAIR MILLER: And we have learned in  
12 past, you do not put that in your recommendation  
13 letter, you send an invitation letter because  
14 there's an invitation letter bin and there's a  
15 recommendation letter bin, and you don't want  
16 your recommendations to go into invitation letter  
17 bin. That's just history, and so I wish Ed were  
18 here and I could tell him that but that's just a  
19 fact.

20 So we can certainly write two letters  
21 saying we really would like to hear more of your  
22 vision for the blue economy and how it's

1 developing, and please come to the Juneau meeting  
2 or some subsequent meeting.

3 MEMBER PAGE: I think it's good that  
4 we're taking note of that, I mean we've mentioned  
5 blue economy I think somewhere in this letter,  
6 right? So the good thing is that we're paying  
7 attention to his vision and embracing it, not  
8 like we're rolling our eyes, we're okay, we like  
9 that.

10 We're all kind of circling the wagons  
11 and saying that's our new course, so that's good,  
12 it really got us motivated. I haven't heard  
13 anybody say anything other than, yes, we're going  
14 in that direction. No one says, that's silly. So  
15 that's good.

16 CHAIR MILLER: Well, and it's very  
17 refreshing because pretty much there has been no  
18 enthusiasm for our purview for a while. So other  
19 ideas please -- so here, I'll read what we've  
20 got.

21 So we'll do an invitation letter, one,  
22 and we'll say we'd like to hear more about your

1 blue economy, et cetera. We'll mention blue  
2 economy in several places in the letter for sure.

3 So here are the five we have right now  
4 and I don't want to put five in. Reimbursement  
5 from FEMA; precision navigation and blue economy,  
6 the economic engine, too; NOAA products and  
7 services for disaster response and coastal  
8 resilience, how valuable they are and, you know,  
9 we need to up our game. That's three. Secondary  
10 channels and going aground in the channels, ICW,  
11 and smaller ports, four. Information integration,  
12 the AIS topic. Okay.

13 So are there any further ones and then  
14 we'll decide which ones go into the  
15 recommendation letter and we'll decide which ones  
16 we put into the --

17 MEMBER GEE: The information sharing I  
18 agree and is there some way to spin that into the  
19 infrastructure and kind of -- because we did talk  
20 about that and how that's the underlying, again  
21 the blue economy, the underlying infrastructure  
22 to the --

1 CHAIR MILLER: Yes, but that's a  
2 collaboration with Coast Guard. That's trying to  
3 get him to say something to the Coast Guard.

4 MEMBER GEE: Oh, sorry. That one?

5 CHAIR MILLER: Yes.

6 MEMBER GEE: Okay, sorry, yes.

7 CHAIR MILLER: Yes.

8 MEMBER GEE: I guess I missed the  
9 point then. I heard something else.

10 CHAIR MILLER: Additional ones that  
11 you think are important? Okay, vote for only  
12 three, okay.

13 Reimburse -- let me, I have to change  
14 my -- I wish I could write them on a board but I  
15 can't. Okay, reimbursement from FEMA.

16 (Off-microphone comments.)

17 CHAIR MILLER: Yes, I want three to go  
18 in the letter, and we'll put the others into the  
19 meeting summary. You want to write them down and  
20 then -- yes. Okay, reimbursement from FEMA, one;  
21 precision navigation and blue economy. Okay,  
22 NOAA products and services upping their game, and

1 you know, for both PORTS and so forth. And I  
2 mean it is for -- yes, PORTS more, yes.

3 Secondary channels and small ports  
4 ICW, basically charting thereof. And that one  
5 really gets into our relationship with the Army  
6 Corps. Information integration, AIS and Coast  
7 Guard. Is that five? Let me check. Secondary  
8 channels, one, two, three, four, five. Okay,  
9 that's only five, I'm sorry. It's not --

10 MEMBER PAGE: To provide him things  
11 that he would engage on, right? That's what  
12 we're trying to figure out. What are things that  
13 -- three things we'd hope that he might take and  
14 run with it.

15 MEMBER THOMAS: Actually, that AIS  
16 problem, even though it's a real pain in the  
17 neck, I don't know if that's really an  
18 administrative -- because that's really a Coast  
19 Guard issue, I think, and as long as you both are  
20 aware of that and can discuss it and take it -- I  
21 know you've been trying.

22 So you think that it is worth sending

1 it to the NOAA administrator?

2 MR. EDWING: I think it's the most  
3 actionable --

4 MEMBER THOMAS: Okay, I just wanted to  
5 make sure you thought that.

6 MR. EDWING: I think it's the most  
7 actionable, easy thing for him to do, and it  
8 could have a huge payoff.

9 MEMBER THOMAS: Okay.

10 MR. EDWING: The blue economy one,  
11 he's already running with.

12 MEMBER THOMAS: It's not really --

13 MR. EDWING: I mean we're really just  
14 kind of reinforcing where he's already going with  
15 that. You know, I agree it should be in there.  
16 But -- I think the AIS is the most actionable one  
17 with the biggest potential payoff.

18 MEMBER THOMAS: Okay.

19 MEMBER PAGE: If he sat down with the  
20 Commandant and I asked him that, he would see  
21 it's a win-win for the Coast Guard and for NOAA,  
22 I think he'd do it. But it almost takes that.

1                   CAPT ARMSTRONG:  So when we came here,  
2                   and particularly on our first day and some  
3                   yesterday, we heard quite a lot about the fact  
4                   that folks here in South Florida would have  
5                   liked, while they were appreciative of everything  
6                   we did, they would have liked for things to have  
7                   happened faster.

8                   So I don't -- I haven't heard anything  
9                   in these recommendations about addressing the  
10                  post-hurricane response.  I don't know whether we  
11                  feel that it's -- yes up, yes, I didn't hear that  
12                  in upping our game.  I didn't -- maybe it just  
13                  went over my head but -- yes, perhaps I didn't  
14                  hear the whole context on the upping the game.

15                  CHAIR MILLER:  I've been told that  
16                  there's a speak-in ready thing here --  
17                  unfortunately, my vision is optimized for very  
18                  short vision, and these things are for distance,  
19                  and that's the distance I can't see.

20                  MEMBER GEE:  So if we're talking about  
21                  actually the faster and doing things better, I  
22                  mean does that tie to the first because you need

1 funding for that, as I -- does that relate to the  
2 FEMA funding as well?

3 CHAIR MILLER: Not to the FEMA funding,  
4 it ties to funding, you know. The FEMA funding is  
5 a separate issue, and Glenn's said he is going to  
6 be working on that but we can support, we can  
7 provide Glenn support, for sure. Let us vote.

8 How many think reimbursement from FEMA  
9 should be among the top three? I will -- we  
10 actually could kind of make that a subset of the  
11 NOAA -- okay, lump.

12 MEMBER THOMAS: So now we're down to  
13 three.

14 MEMBER KELLY: Issue number three just  
15 became one item. Now we only have to kill one.

16 MEMBER THOMAS: No, we're going to roll  
17 it --

18 CHAIR MILLER: Well, actually Rich just  
19 pointed out that the information, getting  
20 information out quickly -- okay, then I won't  
21 write a summary letter -- no I will, we will write  
22 it. And by the way everybody gets -- we send that

1 out, and you get a chance to edit it, agree with  
2 it, add to it. We do try to keep the letter to  
3 one page, and everybody keeps on telling me,  
4 nobody reads more than one page, and you got to  
5 put your bluff, you bottom line up front so --  
6 yes, and I will as you noticed, I fall asleep if I  
7 don't take notes so I took extensive notes.

8 I will try to -- like this afternoon or  
9 this morning's session I -- there were several  
10 themes that just kept coming back and kept coming  
11 back in that I agree with, you know, we have to  
12 watch what our purview is but there's no reason in  
13 our summary of our meeting that we cannot step a  
14 little outside of that. This is what we heard,  
15 not that it's our responsibility, but this is what  
16 we heard.

17 So I will take those notes and try to  
18 craft them into something that's, you know, that's  
19 coherent, to talk about the meeting and the  
20 comments. It's basically a brief summary and our  
21 comments on it. So this allows us to, you know,  
22 we say we're really grateful for, you know,

1 honorable so and so on the panel and things like  
2 that.

3 MEMBER DUFFY: I just want to make a  
4 comment on the going aground in the channel,  
5 although in a lot of places that almost sounds  
6 kind of funny. On the Mississippi River we have  
7 dynamic shoaling of five feet in a 24-hour period  
8 at times, and it is something that happens. So I'm  
9 trusting that the ICW focus will take that away  
10 but that's the only thing that gives me concern  
11 is, you know, professional mariners looking at the  
12 latest surveys may indeed go aground in the middle  
13 of the channel.

14 It's happened probably once a year for  
15 the last 20 years or more, so just with the  
16 connection of representing the river there I would  
17 like to, and I'll review the language, but that's  
18 the only one that really gave me any concern.

19 CHAIR MILLER: Wait until you get to  
20 Alaska and the pilots tell you they go aground  
21 regularly, thank you very much. I was just like,  
22 my goodness what you're talking -- where Hawaii,

1 is that's deep, and if you're in twenty feet of  
2 water you're in real deep problems. And in  
3 Alaska, they go aground all the time.

4 MEMBER DUFFY: You will often hear the  
5 term soft bottom, and we have a very soft bottom.

6 CHAIR MILLER: We do not. Okay, so any  
7 other -- yes, I encourage you -- okay, and the  
8 other thing that we've established, if you don't  
9 have time to get to something or you don't have  
10 any comments, don't not answer. Answer and say,  
11 it's fine. I don't have -- or I don't have time,  
12 you know, you're not going to get anything for it.  
13 Everybody really appreciates that because then you  
14 aren't sitting there waiting and saying, oh, I've  
15 only gotten three comments. What's the problem?  
16 So, please.

17 Okay, let's talk about next meeting  
18 places and hopefully, we will get out of here by  
19 4:30 and I'll meet you all up at the bar.

20 (Off-microphone comments.)

21 CHAIR MILLER: No, this is --

22 MALE: Oh, future meeting, oh.

1                   CHAIR MILLER: Okay, and I'm going to,  
2                   and we have on the -- another, the second page of  
3                   that where we've been in the past. It's in your  
4                   package, so on the back of that is where we've  
5                   been in the past and when. I am not going to  
6                   engage in this because I'm not going to be here.

7                   We -- I think it's -- here's my  
8                   experience, it was very useful for me to go to  
9                   Washington D.C. as a new panel member. I got an  
10                  orientation, you know, and got some idea of -- so  
11                  these are the meetings to date so these -- scroll  
12                  down to the last of them, would you? Okay.

13                 MS. MERSFELDER-LEWIS: So we cycle  
14                 through the regions, like it's approximately every  
15                 five to seven years, so we haven't been -- at the  
16                 last meeting we decided we would go to, we picked  
17                 four cities, and we included New Orleans and D.C.

18                 There are pluses and minuses about  
19                 going when we -- the week that Glenn would like us  
20                 to go is the week after Easter if we go to New  
21                 Orleans in April. If we swap it with D.C. in  
22                 April or D.C. in March, probably, that's a

1 different story, and that's something that the  
2 Admiral will talk to you about if that's his  
3 interest. The D.C. meeting, we are looking for  
4 your recommendation about like would we have it in  
5 D.C, would have it in Annapolis, would we have it  
6 in Baltimore?

7 And we are looking for your  
8 recommendation about dates; if we have the D.C.  
9 meeting in September, there are three possible  
10 weeks. There's one best week, you know, it's hard  
11 -- sometimes it's harder for us to do it the last  
12 week of the year because of fiscal year, and  
13 issues for some offices.

14 So those are some of the considerations  
15 from our side and then the week of April 22nd,  
16 which is the week after Easter. So Easter is the  
17 21st, that week is spring break in New Orleans,  
18 and so we are a little worried about could we, can  
19 we get congressional or Senate representatives to  
20 come and so Tim Osborn is our nav manager there,  
21 he asked us to check in with Sean Duffy about  
22 that. So if Sean wants to weigh in, I would like

1 him to weigh in.

2 MEMBER DUFFY: So what I would say is  
3 spring break for many of us means our kids are  
4 going to Florida and I've reached out to a couple  
5 of the members of the delegation and in all  
6 honesty, they've all said check with me about the  
7 end of the year, it's the kind of thing I'd  
8 probably be interested in, and projecting my  
9 calendar is really hard.

10 I just looked to pull up, so the date  
11 for Mardi Gras Day in 2019 is March 5th, so you  
12 know, keeping it after Easter, I don't see the  
13 spring break as being a big challenge. You know,  
14 we may catch people who are traveling, but I do  
15 envision there being a pretty robust interest in  
16 New Orleans and you know at the end of the day  
17 whether it's in April or in the fall, I don't want  
18 to make that decision.

19 I think we could do well with either.  
20 I'm not all that crazy about meeting in D.C. since  
21 I spend about 40 days there a year, but outside of  
22 D.C. would be better for me. But other than that,

1 I'm done. Happy to help in either way.

2 MS. MERSFELDER-LEWIS: So that -- so  
3 Admiral I think you might have comments, and  
4 Juliana and Richie might have comments. And then  
5 also, the members have additional comments. I  
6 know Easter was a hard -- it's hard to meet the  
7 week after Easter, but Glenn asked if we could try  
8 to do that.

9 CHAIR MILLER: And one of the things,  
10 the reason the week -- Glenn recommends that week  
11 is whether congressionals will be in town or not,  
12 if that's not clear to people.

13 MR. EDWING: So I just wanted to point  
14 out, yes, we try to get back to all the regions  
15 over some regularity, every five years I think you  
16 said, Lynne, but we have made it back to I'll say  
17 Washington a little more frequently than that,  
18 Silver Spring or Washington, that area I think for  
19 a couple of reasons.

20 I think one is that it's a chance to  
21 meet with the major associations, you know, AAPA,  
22 APA you bring in, and also you have a better

1 chance of getting some of our higher level people  
2 in. And then it's also an opportunity, although,  
3 we've never really I think been very successful at  
4 it is I think, and as Julie can attest, you know,  
5 March Madness is when all the big associations  
6 come into town, because that's when the big  
7 decisions are starting to get made on the budget  
8 and you know, after they have their meetings they  
9 all go downtown to talk to their representatives  
10 and, you know, that would be an opportunity for  
11 members to do the same if they wished to do so.

12 But that would be in March, I think,  
13 and not in April, so I'm just putting that out  
14 there because we have talked about it. We've  
15 never really been able to achieve it, at least  
16 achieve it on a regular basis but that at least  
17 was the rationale. So it's up to you all if  
18 that's how you'd like to structure this, but I  
19 just wanted to provide a little bit of that  
20 background and context.

21 MEMBER KELLY: The nice part about  
22 meeting in the D.C. area and we leave it really up

1 to NOAA where you could provide the best of your  
2 staff. I think it might be a great opportunity to  
3 have meetings with actual modelers and have some  
4 back and forth a little bit, some demonstrations  
5 and some of the people that you would not  
6 otherwise really bring on a travel or out-of-town  
7 trip.

8 It gives access to a lot of the NOAA  
9 staff that we normally wouldn't see at this type  
10 of a meeting. So I mean, whether it's in  
11 Baltimore or Annapolis or D.C. or Silver Spring,  
12 you know, it's all the same neighborhood as far as  
13 I'm concerned. Wherever you think it would be  
14 propitious to bring your people to.

15 RDML SMITH: Yes, I mean, I have to say  
16 I've not been to an HSRP in Silver Spring, so  
17 those of you who have maybe could talk about what  
18 worked and what opportunities were there, but I  
19 envision an opportunity -- that it's not really  
20 about meeting with stakeholders directly there.

21 It's about meeting either with subject  
22 matter experts that we can't afford to bring

1 because we have a whole lot more of them there.  
2 Other federal agencies at a senior level, right,  
3 if we go to the regions we get the -- we might get  
4 the colonel, right?

5 If we go to the D.C. area, we might  
6 find a general and same thing with the Coast  
7 Guard. So I think there's an opportunity for  
8 senior level interagency as well and if we're  
9 lucky maybe some policymakers downtown.

10 So I think that's the opportunity, the  
11 question in my mind is when is the right time to  
12 use that opportunity, and to be the most  
13 effective. And I would ask the same thing about  
14 New Orleans is that we do have some projects  
15 planned there, and we may not be on, if it were a  
16 year from now we may not have as much to show as  
17 if we waited a little bit longer, and so that's  
18 just a little bit of a tradeoff there. But I  
19 mostly wanted to make sure that we didn't do a  
20 fait accompli on the scheduling here and that this  
21 really is up to the panel and NOAA can support  
22 what the panel wants.

1                   MEMBER KELLY: Yes, I would say it  
2 might be good to juxtapose the New Orleans and  
3 D.C., reverse that and there are stakeholders. I  
4 mean there's a lot, as you mentioned,  
5 associations, I mean, it has value to us as HSRP  
6 to make sure our story is being heard by the  
7 people at AAPA, at the AWO, there's a bunch of,  
8 you know, trade association people. BoatUS,  
9 there's, you know, the insurance people, there's a  
10 ton of high-level stakeholders that, you know,  
11 could then put the word out to their membership  
12 and I think it would be worthwhile to meet with  
13 those types of people and also the opportunity to  
14 go do a deeper dive into your staff and actually  
15 see some stuff that's being done.

16                   CHAIR MILLER: Yes, the last meeting --  
17 Ed do you want to take off your mic? Yes. The  
18 last meeting that I attended in D.C. we had, this  
19 was our only opportunity to talk with Dr.  
20 Sullivan, Jeremy Weirich, who at that time was on  
21 the Senate Appropriations Committee, came. And we  
22 talked to Anita Lopez who was Admiral Hann's

1 predecessor. I found those extremely valuable  
2 insights.

3 And Manson Brown, so we had four major  
4 players in the NOAA hierarchy. They only came for  
5 an hour or two, but it was very, very invaluable  
6 to me to under, you know, to get a better picture.  
7 You're off.

8 MEMBER THOMAS: Andeavor has two great  
9 lobbyists in D.C. who I've met with. They'd be  
10 great on a panel for an hour talking about what  
11 was actually needed for the precision nav.

12 MEMBER MAUNE: And in that session in  
13 D.C. we tried to get the General from the Corps of  
14 Engineers, and we never got a colonel either we  
15 got Jeff Lillycrop who was representing the  
16 hydrographic services for the Corp. We tried to  
17 get generals and couldn't, and we got Paul Rooney  
18 from FEMA, we couldn't get any of the top  
19 leadership at FEMA to come either.

20 MS. BLACKWELL: Just quickly, I think  
21 the two locations are great, I would recommend  
22 switching them and doing a D.C. meeting in the

1 spring.

2 MEMBER GEE: What -- yes, I agree with  
3 that as well but, from listening to you all, but  
4 what defines the time in the fall? The date in  
5 the fall?

6 MS. MERSFELDER-LEWIS: No fall recess,  
7 that we -- we would have to go in August. It  
8 would be the end of August which is kind of a  
9 terrible time in New Orleans, but you know it's,  
10 that's when -- it would be about the last week.  
11 Yes, you'll just be in an air-conditioned  
12 windowless room.

13 MEMBER MAUNE: Now in D.C. in the  
14 March/April timeframe we deal with cherry  
15 blossoms. There are hordes of people that come to  
16 D.C., and there may be hotel limitations at that  
17 time, I don't know.

18 MEMBER DUFFY: So I would just throw  
19 out, thinking about swapping also maybe being a  
20 good idea, the National Waterways conference will  
21 be in New Orleans in either August or September of  
22 this year, and I will say that when it comes to

1 the Corps in New Orleans or headquarters, I have a  
2 feeling we'd be able to pull somebody.

3 We've had a pretty good relationship  
4 with a lot of the senior staff and have been able  
5 to get some of them to NAMO meetings and a lot of  
6 stuff in New Orleans as well. So hopefully that  
7 rapport that we have with each other would help on  
8 those.

9 RDML SMITH: I'm hearing pretty broad  
10 consensus for swapping these two, and Lynne says  
11 it's up to me and Joyce and we just discussed it  
12 and concur with that spirit. So, Lynne, I think  
13 we have a decision.

14 MS. MERSFELDER-LEWIS: Would you please  
15 look at your calendars and we will look at  
16 calendars too, but it's almost for sure the last  
17 week of August, that's when recess is for  
18 Congress, for New Orleans, and it's -- we'll just  
19 make sure -- it's actually not good to do it the  
20 week of March Madness.

21 I think we like, overlap with too many  
22 other things, so we'll -- I'm guessing it will be

1 the second or third week of March, just as a  
2 guess, but we'll do a Doodle poll and we'll try to  
3 get more information.

4 MEMBER KELLY: Yes, and I personally,  
5 I prefer the late August period, it's easier for  
6 me to skew my vacation than it is to change my  
7 world. You know, like right now, there's emails  
8 and business going on, and it's tough to extract  
9 myself from that but late August is kind of a  
10 quiet time. It's much easier, just personally,  
11 for me to schedule that, than it is to try to do  
12 it during September when everybody's just back  
13 from the summer and, you know, and we're in demand  
14 a lot more for our day jobs.

15 MS. MERSFELDER-LEWIS: Okay, I think  
16 we'll table that for right now, and I'll try to  
17 get you a better idea about dates.

18 CHAIR MILLER: We have three minutes  
19 left.

20 MEMBER GEE: Should we have public  
21 comment time or not?

22 CHAIR MILLER: No. It's only once a

1 day. Okay, unless, I mean, I don't think we have  
2 any public at this point. Attrition. Okay, thank  
3 you, everyone, for a really good meeting. A  
4 little tiring but I think we made it, and we'll  
5 see you in Juneau, I guess.

6 (Whereupon, the above-entitled matter  
7 went off the record at 4:28 p.m.)

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C E R T I F I C A T E

This is to certify that the foregoing transcript

In the matter of: Hydrographic Services Review Panel

Before: US DOC/NOAA

Date: 04-05-18

Place: Miami, FL

was duly recorded and accurately transcribed under my direction; further, that said transcript is a true and accurate record of the proceedings.



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Court Reporter

**NEAL R. GROSS**

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