

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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TUESDAY
MARCH 5, 2019

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The Hydrographic Services Review
Panel met at the Hall of States, 444 N. Capitol
Street, N.W., Washington, D.C., at 9:00 a.m., Ed
Saade, Chair, presiding.

HSRP MEMBERS PRESENT:

EDWARD J. SAADE, HSRP Chair
JULIE THOMAS, HSRP Vice Chair
CAPTAIN ANUJ CHOPRA
SEAN M. DUFFY, SR.
KIM HALL
DEANNE HARGRAVE
EDWARD J. KELLY
CAPTAIN ANN KINNER
DR. DAVID MAUNE
CAPTAIN ANNE MCINTYRE*
CAPTAIN (ret. USCG) ED PAGE
CAPTAIN SALVATORE RASSELLO
GARY THOMPSON

*present by telephone/webinar

NON-VOTING HSRP MEMBERS:

CAPTAIN ANDY ARMSTRONG (ret. NOAA Corps),
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
DR. LARRY MAYER, Co-Director, NOAA/University of
New Hampshire Joint Hydrographic Center

STAFF PRESENT:

REAR ADMIRAL TIM GALLAUDET, Ph.D. (ret. USN),
Assistant Secretary of Commerce for Oceans
and Atmosphere, NOAA

NICOLE LEBOEUF, Acting Assistant Secretary, NOS

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

GLENN BOLEDOVICH, Director, NOS PCAD

CAPTAIN JIM CROCKER, Chief, Navigation Services
Division, Office of Coast Survey

VIRGINIA DENTLER, Center for Operational
Oceanographic Products and Services

LYNNE MERSFELDER-LEWIS, HSRP Coordinator

ALSO PRESENT:

DR. QASSIM ABDULLAH, Chief Scientist, Geospatial
Services, Woolpert, Inc.

CHRIS EDMONSTON, President, BoatUS Foundation
for Boating Safety and Clean Water

WILL FEDIW, Industry and Government Affairs,
Virginia Maritime Association

SARA ROTH-GONZALEZ, Senior Counsel, Senate
Commerce Committee

SUSAN MONTEVERDE, Vice President for Government
Relations, American Association of Port
Authorities

REAR ADMIRAL JOHN P. NADEAU, Assistant
Commandant for Prevention Policy, U.S.
Coast Guard

THOMAS P. SMITH, P.E., SES, Chief, Operations
and Regulatory Division, LRD/NAD Regional
Integration Team Leader, Directorate of
Civil Works, U.S. Army Corps of Engineers

CAPTAIN JORGE VISO, President, American
Pilots' Association

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

9:06 a.m.

CHAIR SAADE: All right, we're going to gavel this open. Thanks. Welcome, everyone, to the Hydrographic Services Review Panel meeting here in Washington, D.C. I've got to look at my notes. Great to see everyone. Great to see everyone in the audience here, if we have to turn around.

Good morning. I'm Ed Saade. I'm the chair of NOAA Hydrographic Services Review Panel. The HSRP co-chair is Julie Thomas here, and we're both new in this -- in our respective positions, happy to be here. It's great to be in D.C., where we'll highlight the importance of the Blue economy in NOAA's headquarter hometown.

We're joined by many stakeholders, partners and NOAA staff this week. I encourage your attendance on Wednesday and Thursday for speakers of, on geospatial data, marine weather services and the NOS Navigation Services portfolio, and that's going to include lots of

1 commentary on new technologies and things.

2 In addition to the stakeholders
3 session this afternoon, on Thursday there is a
4 session on sea level rise and coastal inundation,
5 and that was an amazing lineup. Please join us
6 for that as well. We're joined by NOAA senior
7 leadership. Warm welcome to the NOS Acting
8 Assistant Administrator Nicole LeBoeuf, and also
9 the NOAA Deputy Assistant Secretary for Oceans
10 and Atmosphere, Rear Admiral Tim Gallaudet.

11 We had excellent discussions in Juneau
12 as you all remember, which was at our last HSRP
13 meeting. We had a great turnout from the local
14 community and interested parties. We hope to
15 achieve the same thing here in Washington.

16 Wow, that was a nice effect. There's
17 going to be a lot of that this week.

18 (Laughter.)

19 CHAIR SAADE: We're joined by senior
20 leadership from U.S. Army Corps of Engineers,
21 Thomas Smith, and Rear Admiral Nadeau from the
22 U.S. Coast Guard. Thanks to the congressional

1 staff for breaking away from their busy March
2 schedules and the budget rollout. In this case,
3 this will be in particular Sara Rothi-Gonzalez
4 will be attending.

5 I've got to kind of turn my head for
6 those of you in the public. We really encourage
7 you all to make comments. We really hope that
8 you get involved. We take all of your comments
9 and questions to heart, and they really do have
10 an impact on some of the directions that the
11 Panel goes, so please participate.

12 I'd like to thank the NOAA Corp and
13 other key NOS and NOAA staff who worked during
14 the government shutdown to keep the Navigation
15 Services operating. We truly, really appreciate
16 all that you did, and the complications to your
17 personal lives and challenges. We understand how
18 important it is and thank you sincerely.

19 This is a request to the NOS and the
20 NOAA leadership to comment on the short and long-
21 term impacts to the Navigation Services
22 portfolio, especially to the fleet and other key

1 impacts of the shutdown and lessons learned, and
2 then also pending contracts, task orders if you
3 believe there's anything relevant to share with
4 the audience.

5 We have NOAA NOS staff assisting us.
6 I'm going to read through all the attendees here.
7 Can you please stand up? First of all Lynne
8 Mersfelder-Lewis. Virginia Dentler.

9 Okay. Melanie Colatuno, Captain
10 Kretovic, Nathan Littlejohn. Amanda Phelps,
11 Michelle Burt and Galen Scott. And many others,
12 and I'm sure their names will pop up and we'll do
13 our best to make sure we recognize everybody.
14 They will assist you with public comments,
15 security, logistics and other items.

16 On the public comments time, please do
17 not start speaking until someone brings the
18 microphone to you, not only for the benefit of
19 the people in the room, but also for the benefit
20 of the people that are online following this
21 panel meeting.

22 I encourage you to sign up for the

1 daily opportunities for public comment, whether
2 in person or to submit your comments in writing.
3 That can be read into the record and of course
4 raise your hand if you're online. Please see
5 Lynne or Virginia.

6 Okay. That's it for the
7 introductions. So it's now my pleasure to
8 introduce Rear Admiral Smith, the Director of
9 Office of Coastal Survey, and the HSRP Designated
10 Federal Officer. His bio is in your materials.
11 Shepard.

12 RDML S. SMITH: Thank you, Ed. Good
13 morning. I'm the HSRP DFO. This is an
14 especially warm welcome to our three new HSRP
15 members.

16 We have Captain Anuj Chopra and Deanne
17 Hargrave and Captain Ann Kinner, who all join us
18 for their first meeting today. We did have an
19 opportunity yesterday to introduce them a little
20 more broadly to NOAA and the NOAA programs, and
21 some of the NOAA people at an orientation session
22 in Silver Spring, which went very well.

1 We are thrilled to have Rear Admiral
2 Tim Gallaudet with us today, the Assistant
3 Secretary of Commerce for Oceans and Atmosphere,
4 who will swear in the new members. Can you
5 please take out your oath of office and read
6 along? Do we have this choreographed? Who knows
7 the choreography? Okay.

8 RADM GALLAUDET: Oh, is there someone
9 online?

10 So this is a really special day
11 because these three individuals have taken up the
12 calling for federal service.

13 They're becoming public servants here,
14 and it is something we do at NOAA and our NOAA
15 Corps officers, and we know it by heart and it's
16 in our -- it's in our every fiber of our being,
17 and it's from my Navy experience as well.

18 So it's a very special thing, and I'm
19 honored to be able to swear you in today and have
20 you embark on this great journey supporting the
21 Hydrographic Services Review Panel, but also
22 being public stewards. So will you please face

1 me and raise your right hand?

2 [MEMBERS SWORN IN.]

3 RADM GALLAUDET: Congratulations. Well
4 done. Excellent, all right.

5 (Applause.)

6 RADM GALLAUDET: All right. Let's get
7 this show on the road.

8 CHAIR SAADE: Thank you, Admiral
9 Gallaudet. Before we get started, I wanted a few
10 housekeeping items. First of all, this is a
11 public meeting. There is a webinar and we are
12 being recorded. So think of yourself in a large
13 stadium with a panel of reporters when thinking
14 about how you approach topics.

15 There will be a public comment period,
16 so we do encourage public participation. But we
17 do have a window where that is -- where we focus
18 those comments.

19 So for those of you observing the
20 meeting, please think about your questions and
21 unfortunately we don't have them -- we have them
22 at a few points during the agenda, and do not

1 have them frequently.

2 So be ready for those questions. If
3 you've not already signed up to make a comment or
4 signed into the meeting, the sign-in sheets for
5 both are coming around. The emergency exits are
6 the way we -- in the direction that we came in.
7 Where are the bathrooms? I don't know where the
8 restrooms are, but I'm supposed to tell you so --
9 okay. Down that way and to the right. We have a
10 great session this morning and this week to focus
11 on NOAA's Navigation Services, sea level rise,
12 coastal resilience, tech transfer and Arctic
13 priorities.

14 The next two days will allow ample
15 formal and informal opportunities to discuss in
16 depth and focus on HSRP's prioritization of
17 topics, development of a revised HSRP Arctic
18 issue and other topics.

19 I would like to acknowledge the
20 following individuals who made time to attend the
21 meeting and/or travel to D.C.: Rear Admiral John
22 Nadeau from the United States Coast Guard, Thomas

1 Smith from the Army Corps of Engineers. Is
2 Claire Trokey from Representative Scalise's
3 office here? Okay. The stakeholder session will
4 be led by HSRP Member Ed Kelly, here, and Captain
5 Jim Crocker, George Viso from the American Pilots
6 Association, Susan Monteverde, Qassim Abdullah,
7 Will Fediw and Chris Edmonston. The Sea Level
8 Rise Coastal Resilience session on Thursday, led
9 by a HSRP Member.

10 We'll have a substitute and Audra
11 Luscher from NOAA, including Mark Osler, Rear
12 Admiral Ann Phillips, Billy Sweet, Brian Batten
13 and John Eggleston. Have I missed any
14 congressional staff who have joined us today?

15 There are NOS and NOAA directors,
16 staff and subject matter experts in the room who
17 can reach out -- who you can reach out to during
18 the meeting and during the year to delve deeper
19 into the Navigation Services mission. I'd like
20 to introduce some of them. Rich Edwing, here's
21 Rich, the director of CO-OPS, Juliana Blackwell.

22 (Off mic comment.)

1 CHAIR SAADE: Yes, I was locating you
2 first, from NGS. Dr. Larry Mayer and Captain
3 Andy Armstrong from the University of New
4 Hampshire, are non-voting members of the HSRP.

5 Captain Liz Kretovic and Liz
6 Mersfelder-Lewis serve as alternate designated
7 federal officers, and Lynne is the HSRP's program
8 manager. Both can help you find experts and
9 answers.

10 There's excellent turnout, and there
11 are many NOS staff and subject matter experts in
12 the audience. I'd like to introduce a few of
13 them, so that -- so that we know who's in the
14 room. From NGS, Galen Scott, Mike Aslasken, Brad
15 Pierce. Some of those are here. Oh, there's
16 Mike. From CO-OPS, Laura Rear McLaughlin, Audra
17 Luscher, Billy Sweet, Michelle Burt, Brent Ache,
18 and Marian Westley.

19 In Coast Survey, Captain Brennan will
20 be joining us later. Captain Crocker, Jim
21 Crocker is here, Neeraj Saraf, Lucy Hicks. Katie
22 Ries will be joining us later, and Ashley

1 Chappell is here.

2 From NOS Policy, we have Glen
3 Boledovich and Rich Schwabacher. From NOS
4 headquarters, Emily Menashes will be joining us
5 later and Robert -- Robin Czerwinski.

6 On site, you'll have help from Lynne
7 Mersfelder-Lewis, Virginia Dentler and Melanie
8 Colatuno and others. All right, back to you,
9 chair.

10 CHAIR SAADE: As the speaker and HSRP
11 member bios are in your materials and are posted
12 publicly, we'll only do some very short intros
13 right now. So I'd like to thank the NOAA Corps
14 and other key NOS and NOAA staff who worked
15 during the government -- oops. I already said
16 that one. God, you can tell I'm a rookie at
17 this.

18 I'd like the HSRP members to introduce
19 themselves with your name, organization,
20 expertise, area, geographic area of expertise,
21 whatever, whatever you feel is relevant. But
22 keep in mind to help out with the -- all the

1 public participation and give them an idea of the
2 breadth and the diversity that we have on this
3 panel.

4 As we don't have time to do the
5 audience introductions during this -- breaks --
6 at each break it would be great if those in the
7 audience we can ask you to introduce yourselves
8 to someone you don't know, or introduce yourself
9 to any one of us on the panel, and we truly want
10 your feedback again.

11 So let's go ahead and try for that.
12 So why don't we start with you, Julie, and we'll
13 go around the table this way.

14 CO-CHAIR THOMAS: Julie Thomas. I sit
15 -- sit in San Diego, Scripps Institution of
16 Oceanography, and I've been principal
17 investigator and program manager for a program
18 that has 71 real-time wave monitoring buoys. We
19 ship them right out to NOAA, to NDBC, where
20 they're assigned a NOAA ID, and they become part
21 of the NOAA network for National Weather Service.

22 Also, I was director of Southern

1 California Ocean -- Coastal Ocean Observing
2 System SCCOOS, which was -- which is one of the
3 NOAA IOOS 11 regions, and I was director there
4 for nine years. So I've had the pleasure of
5 working both closely with the Army Corps, which
6 funded CDIP, our wave program, and also NOAA over
7 several years. Thank you.

8 MS. BLACKWELL: Good morning. I'm
9 Juliana Blackwell. I'm the Director of NOAA's
10 National Geodetic Survey, headquartered in NOAA's
11 headquarters in Silver Spring, Maryland. Thank
12 you.

13 MEMBER DUFFY: So I'm Sean Duffy of
14 the Big River Coalition from New Orleans here on
15 Mardi Gras day. That has to show commitment to
16 the effort. Happy Mardi Gras. I didn't bring
17 any beads or king cake. I represent the
18 navigation interests on the Mississippi River,
19 focusing on ship traffic, and we also do a
20 shallow draft above. Thank you.

21 MEMBER CHOPRA: Good morning. My name
22 is Anuj Chopra. I lead the RightShip team for

1 Americas based out of Houston. I'm a mariner by
2 profession, started -- sail for 15 years. I ran
3 a fleet, large fleet for 20 years and then last
4 six years on the commercial risk side. My focus
5 is really on safety and sustainability of the
6 maritime supply chain, and try to bring that
7 experience to the panel. Thank you.

8 MEMBER KELLY: Good morning. My name
9 is Ed Kelly. I'm the Executive Director of the
10 Maritime Association of the Port of New York and
11 New Jersey. We represent commercial navigation
12 interests. Our membership of over 560 corporate
13 and individual members includes marine terminals,
14 deep sea international lines, tug and barge
15 operators, admiralty attorneys, all sorts of
16 terminal operations.

17 So we have a very broad spectrum of
18 commercial and port activity. Our area is
19 maritime transportation. Previously to doing
20 this with the Maritime Association, I was
21 president and CEO of two different Asian
22 international lines running their operations in

1 North and South America.

2 I'm a graduate at King's Point, and I
3 have sailed as a deck officer on several, well
4 actually quite a few American-flagged vessels.

5 MEMBER MAUNE: Good morning. My name
6 is Dave Maune. I work for Dewberry Engineers in
7 Fairfax, Virginia. I'm a retired Army colonel
8 from the U.S. Army Corps of Engineers, sir, and
9 for the last 26 years I have been working for
10 Dewberry, where we specialize in elevation
11 mapping.

12 I'm really, if you will hold up that
13 book, that's the book that I'm the editor and
14 principal author of, published in November on
15 digital elevation models. It's about
16 photogrammetry, LIDAR, IfSAR, and sonar. So
17 that's my specialty, elevation modeling.

18 MEMBER PAGE: I'm Ed Page. I'm
19 executive director for the Marine Exchange of
20 Alaska. Also serve as a vice chair of the Alaska
21 Ocean Observing System. My Coast Guard -- my
22 maritime career goes back to 1968, when I first

1 entered the Coast Guard, so it's about 50 years
2 and 30 years of which has been in Alaska.

3 So I think I'm going to stay up there
4 since every once in a while they let me back into
5 the America, it's very nice down here. But the
6 Marine Exchange runs a vessel tracking system
7 comprised of about 130 AIS stations, another 30
8 transmitting AIS stations, and 49 weather
9 stations, and a variety of current sensors
10 throughout the state.

11 So what we do is very much into --
12 compared -- or complements what NOAA's doing. We
13 work very close with the Weather Service,
14 transport them around on our landing craft and
15 what have you, and we're all about providing
16 information to mariners to help ensure safe,
17 secure, efficient and environmentally sound
18 maritime operations. So I'm pleased to be on the
19 panel, and that's my story, and I'm sticking to
20 it.

21 MEMBER RASSELLO: Dr. Sal Rassello.
22 I'm Nautical Director of Carnival Cruise Line in

1 Miami. I do port assessment of new ports for
2 larger vessel, precise navigation, electronic
3 navigation for new ports. Also for old ports
4 with bigger ships.

5 MR. EDWING: Morning. I'm Richard
6 Edwing, Director of the Center for Operational
7 Oceanographic Products and Services headquartered
8 here in Silver Spring. We acquire Oceanographic
9 Information and turn it into meaningful
10 information for the nation. Thank you.

11 MEMBER HARGRAVE: Good morning, I'm
12 Deanne Hargrave. Thank you for the warm welcome.
13 I'm a senior operations surveyor for Shell
14 International Exploration and Production, and we
15 acquire seabed data for managing safe operations
16 in the oil and gas industry for drilling and
17 other operations. Thank you.

18 MEMBER THOMPSON: Good morning. My
19 name is Gary Thompson. I'm the Director of the
20 North Carolina Geodetic Survey, and also I'm the
21 interim Risk Management Director for North
22 Carolina Emergency Management. My area is

1 geodetic survey.

2 MEMBER KINNER: Good morning. I'm Ann
3 Kinner. I own Seabreeze Books and Charts in San
4 Diego, and I've been dealing with the
5 recreational community for probably 35 years. I
6 also am now the chair of the San Diego Harbor
7 Safety Committee, and we provide charts to all,
8 basically all levels of the maritime community
9 from hydrographic services all around the world.
10 Anything that's available, we can get it.

11 CAPT ARMSTRONG: Good morning. I'm
12 Andy Armstrong, and I'm the NOAA co-director of
13 the NOAA-University of New Hampshire Joint
14 Hydrographic Center in Durham, New Hampshire.

15 DR. MAYER: And I'm Larry Mayer. I'm
16 the other co-director of the Joint Hydrographic
17 Center at the University of New Hampshire. Andy
18 and I are both non-voting members on the panel,
19 and I'm also the Director of the School of Marine
20 Science and Ocean Engineering at the University
21 of New Hampshire and, probably more relevant, the
22 director of the Center for Coastal and Ocean

1 Mapping at the University of New Hampshire, and
2 I've kind of dabbled in ocean mapping and
3 visualization technologies for a few years.

4 RDML S. SMITH: Sure. I'm Rear
5 Admiral Shep Smith. I'm the Director of the
6 Office of Coast Survey at NOAA. I've been a NOAA
7 Corps officer for 26 years, mostly in the
8 hydrographic program. I've been at sea,
9 commanded the NOAA ship Thomas Jefferson,
10 involved a lot in technology development.

11 I was the very first masters student
12 at the brand new University of New Hampshire when
13 it opened up in 2000, and I also serve on the
14 Mississippi River Commission, where I see a lot
15 of Sean, and as the chair of the IHO Executive
16 Council for the International Hydrographic
17 Organization.

18 CHAIR SAADE: Thanks, everyone. I'm
19 Ed Saade. I'm the chair of the Hydrographic
20 Services Review Panel. I'm the president of
21 Fugro USA, and I'm the regional director for
22 everything that Fugro does in the Americas

1 region.

2 We're a large international surveying
3 and mapping firm. We are acutely aware and
4 interested in everything that comes out of this
5 panel because. as much as anything else, it
6 directly affects the types of work we do, but
7 also the tremendous amount of technology that
8 comes out of the various developments, both
9 sponsored by NOAA directly and what goes on at
10 the University of New Hampshire and the other
11 labs that produce these types of technologies.
12 To me, it's a phenomenal achievement, and we're
13 going to talk some more about it this week.

14 So with all that out of the way, we'll
15 go ahead and start moving towards our
16 distinguished speakers to kick off this meeting.
17 So a warm welcome to NOS Acting Assistant
18 Administrator Nicole LaBoeuf, who has remarks to
19 share. Her full bio is in your materials, but,
20 Nicole, if you're ready, please go ahead.

21 MS. LeBOEUF: Thank you. Good morning
22 everyone. My sincere apologies for being late.

1 I was in a Lyft car for almost two hours. I am
2 all caught up on Latino pop music. I'm very
3 happy about that and very happy to be here. This
4 is not my normal accoutrement. Hopefully, some
5 of you are aware, raise your hand if you know
6 what today is. All right. Happy Mardi Gras,
7 everyone.

8 Thank you, Ed. It's good to see you
9 again. It's good to see a lot of familiar faces,
10 and welcome to Washington, D.C. for HSRP 2019. A
11 special welcome to our three new members.
12 Captain Anuj Chopra, welcome. Captain -- or
13 Deanne Hargrove, welcome, and, Captain Ann
14 Kinner, welcome very much. I'm looking forward
15 to integrating your expertise into the panel, so
16 looking forward to a good week.

17 I want to thank Lynne Mersfelder,
18 who's going to hear me now. Right, hi. Welcome,
19 Lynne. Thank you everything you've done to get
20 this meeting off the ground and running, and I
21 know it will be successful despite the 35-day
22 delay that we had. Unexpected. So it took a

1 toll on folks who were planning things just after
2 we returned. So, Lynne and team, thank you so
3 much.

4 So yeah. So Mardi Gras is a special
5 tradition for my family. I was born and raised
6 in South Texas, but with a name like LeBoeuf, you
7 can't get away from being a Cajun. So I was up
8 late last night and early this morning making
9 gumbo and prepping the boudin and getting
10 everything ready for tonight. So I'm going to be
11 here with you today, but in spirit I might be
12 thinking about when my guests arrive.

13 So this is not my first HSRP now, this
14 is my second HSRP, which is exciting. My first
15 one was in Juneau, Alaska, a city that I know
16 quite well. I lived there for a little while a
17 few years ago. Had a great time getting to know
18 all of you, and as an introduction to HSRP, it
19 was a little unusual, I think, because there were
20 some firsts or at least some sort of landmark
21 activities.

22 One was a joint session with the IOOS

1 Advisory Committee, which I thought was quite
2 good and productive. Another was, you know, back
3 to back with AMEC, and in doing so we were able
4 to get some really nice advances in incorporating
5 coastal issues into their scope, and I think that
6 was really worthwhile.

7 We also were able to advance the use
8 of AIS data in our PORTS, and so I think we made
9 some really good progress in Juneau. We also saw
10 some whales. We also heard some singing and
11 guitar playing, and at least maybe one or two
12 bottles of juniper gin made it home with me. So
13 thank you to Juneau for hosting us and for Ed
14 Page for his remarkable hospitality, fantastic.

15 So we have a high bar to hit this
16 week, but all of those successes, I think, are
17 just ones that we build upon. A lot of
18 leveraging, a lot of fostering partnerships is
19 going to be essential to get at our shared
20 objectives and yeah, looking forward to just
21 continuing to learn about the panel and the
22 importance of its work.

1 As you all know, the advice you
2 provide or the programs to which you provide
3 advice provide foundational data and products
4 that support just the very, very basic aspects,
5 not basic as in simple, but basic as in
6 fundamental aspects of our nation's economy and
7 national security.

8 Not everybody knows that, but I know
9 you all know that. Those programs are the core
10 of the National Ocean Service, and we're very,
11 very proud of them, and we are very, very
12 interested in your discussions, your issue
13 papers, the recommendations in those issue
14 papers. They provide us with direction. They
15 help set our priorities. You're going to hear
16 about the programs this week, and you're going to
17 have an opportunity to provide us with those
18 recommendations. But we're always, always very
19 interested in what you have to say.

20 And we are increasingly aware that not
21 only are we in, I'll say, dire, significant,
22 maybe heightened need to reinforce our nation's

1 infrastructure, not just along the coast but
2 throughout, and so we are not just planning for
3 today, but we're planning for a future that is
4 increasingly uncertain and the programs that you
5 advise are at the core of that.

6 You know, just to give an example of
7 the National Geodetic Survey, their products and
8 services touch such a wide range of
9 infrastructure-related projects and initiatives
10 around our country, way beyond maritime
11 navigation, though that's part of it, but air and
12 land, transportation, construction, flood risk
13 determinations, water management.

14 I mean it's kind of everything when
15 you start to think about it, and I want to thank
16 you for all the advice you've given specifically
17 to NGS, but also to others. I know Juliana and
18 Brad are very thankful for that as well. You're
19 going to get some updates from our offices, so
20 that you know the latest and greatest of what
21 they're working on so that you can best advise
22 them.

1 So you're going to hear this week from
2 Coast Survey, National Geodetic Survey as well,
3 and CO-OPS. I know that Admiral Smith from the
4 Office of Coast Survey is going to talk to you
5 about the National Charting Plan, and the impacts
6 on the raster charts and improving the electronic
7 navigational charts.

8 You're going to hear from Juliana some
9 of her major program areas that are underway,
10 including an update on the reference frames,
11 GRAV-D and Foundation CORS. Rich is going to
12 talk to you about his implementation of a
13 strategic plan that you all greatly helped
14 inform, so thank you for that. You should
15 probably recognize yourself a little bit in what
16 he has to say.

17 And I'm looking forward to hearing
18 from Larry and Andy, our partners in crime at
19 UNH. We really appreciate all you guys do,
20 whether it's dabbling or more than that. We
21 really appreciate that. It's a fantastic team.

22 So what we need from you guys is a

1 couple of key areas that I'll hone in on, of
2 course provide advice as you see fit, you're the
3 experts. But a couple of key or three key areas
4 I'd like to highlight. One is with regard to
5 modernization. So, you know, more than ever we
6 are seeing technology and innovation and
7 everything from cloud computing to machine
8 learning just rapidly, rapidly advancing.

9 The federal government is not often
10 considered right on the cutting edge, right,
11 sometimes for the behemoth that gets drug behind.
12 But really do want to be on the cutting edge of
13 these technologies and keeping up with the pace,
14 and it's difficult. More than that, we want to
15 build a reputation for and actually be a federal
16 agency that is on the cutting edge with you guys,
17 and we'll need your insights there.

18 And we want to be as nimble as we can
19 be. We want to be aware of new technologies and
20 capabilities coming online, so that we can
21 respond to everything that's ahead of us. But
22 we're going to need you to help us to do that.

1 It is hard to steer the government ship, so we
2 want to hear from you all.

3 We're looking for advice on our role
4 in emergency response. Across the board, NOS is
5 really leaning into and being asked to provide
6 assistance in emergency response, which is
7 something that we're hearing from FEMA, the
8 states, Army Corps, and others. We already
9 provide some essential services, CO-OPS Quick
10 Looks, for example, NGS's aerial survey and basic
11 positioning data, and also from OCS we have our
12 navigational response teams and nowCoast. But I
13 think we're just seeing the tip of the iceberg of
14 what NOS can do, and folks are noticing, you
15 know.

16 We played a crucial role, the National
17 Geodetic Survey in particular, after an Alaskan
18 earthquake, and we are providing data that we
19 know we have, but folks are finding new
20 applications for it in emergency response.
21 Congress is noticing, and that's usually a good
22 thing, right, when Congress notices. We'll keep

1 it on the positive, right, when Congress notices.

2 They provided \$40 million in
3 supplemental funding for our mapping, charting
4 and geodesy program line for response and
5 recovery activities. We also have a request in
6 for additional supplemental funds for the next
7 year for the Florence and Michael hurricanes,
8 where we're asking for another \$30 million in
9 response costs that will help us not just recoup,
10 but will help us prepare for the next
11 emergencies.

12 So that's good. Congress is watching,
13 and other agencies are noticing, and so we need
14 to continue to raise awareness and just have a
15 consistent push and press to get out the word
16 that we can provide these services and these
17 data, and I'm hopeful you guys can help us with
18 that.

19 The work that the offices do, that you
20 advise, and the work of HSRP is largely about
21 technology and innovation, and we want it to be
22 that way. But I think increasingly our work will

1 have to be about planning for life in the future
2 on a changing planet.

3 And something that's been on my mind
4 a lot in the last few weeks and months is
5 something that you guys have willingly said you'd
6 like to talk about this week, and that's sea
7 level rise. So I commend you for having a panel
8 on sea level rise. I will be listening keenly to
9 the discussion and any ideas that you all come up
10 with on that.

11 Some might say well, you know, sea
12 level rise, that's out of HSRP's scope, right.
13 You should be sticking to the core stuff that you
14 work on. I'm not sure sea level rise is going to
15 be outside of anyone's scope, and that's
16 daunting. That doesn't mean you don't find your
17 lane and fill it out, and let others fill their
18 lanes out.

19 But I'm increasingly of the mind that
20 sea level rise will be everyone's job, and we
21 already provide information that is valuable for
22 sea level rise planning. CO-OPS provides data

1 and services critical with regard to rising sea
2 levels and coastal hazards. Our Office for
3 Coastal Management, who you guys don't often
4 advise, communicates with coastal managers and
5 the public about risks from coastal inundation.

6 But I think we're going to need to do
7 more. I believe that NOS is ideally poised to
8 assert leadership in this regard, not just
9 technically and scientifically but in terms of
10 risk communications, in terms of building
11 decision support tools that help people make
12 decisions and not just frighten them, although
13 fear is a motivator, right?

14 It can't be everything, and we are a
15 data-driven organization. I think we're going to
16 find ourselves increasingly demanded upon for
17 those kinds of planning tools. We're the folks
18 that are advising on infrastructure, surveying,
19 mapping, charting, monitoring the coast, water
20 levels, ecological changes. That's kind of
21 everything NOS does.

22 And it's a bit of a light bulb is

1 starting to go off, I'm afraid, and I think we
2 need to continue to develop and push out the very
3 best data and the very best services and the very
4 best communications to the public to help them
5 understand what's ahead. I think there are --
6 there's information and data we can provide for
7 very difficult and very expensive decision-
8 making. Folks will not take data that is not
9 validated. They will not take data that is not
10 verifiable. People look to us for those data
11 already.

12 I think we're starting to get to a
13 point where those data are going to have to
14 really be placed in the right hands to inform the
15 right kinds of decisions, and I would value
16 greatly your input on how best to utilize,
17 leverage, and potentially augment NOS expertise
18 and capacity to deal with sea level rise,
19 particularly with regard to the offices that will
20 be represented today.

21 A little bit about budget. For FY
22 '19, HSRP-related programs in general look pretty

1 good. I've worked in budget throughout my career
2 here and there, and I know that increases are
3 great and decreases are bad, and that level
4 budgets are very challenging.

5 Most of our programs at NOS are level
6 budgeted, which is good. It does create
7 challenges. We do have some notable increases
8 though in that, for example, some hydrographic
9 surveys. I think that's fantastic. The CO-OPS
10 and National Water Level Observation Network got
11 some additional funds to repair some stations.
12 That's good.

13 We also at NOAA received another \$75
14 million to help recapitalize our aging white boat
15 fleet, and that is good. We also received
16 additional funds to help with the backlog of
17 deferred maintenance. I will say I think we need
18 more. I think both admirals in the room would
19 agree with me there. But it's a start, and now
20 it's up to us to prove to Congress that we can
21 spend that money wisely, and see if we can get
22 some more of it.

1 But I do feel that austere budget
2 times are going to continue to face us, and so
3 it's up to all of us to continually message what
4 we do and how valuable that is. So to your
5 agenda, it's ambitious, it's busy. We look
6 forward to everything we can do to help support
7 you in your discussions.

8 Please consider the issue papers that
9 you're going to draft, and let's talk about what
10 those might need to be. We really appreciate the
11 issue paper you provided recently on precision
12 navigation. It was very, very helpful.

13 So along those lines, I'd like you to
14 consider pushing the envelope, whether it's
15 emergency response or sea level rise that you
16 choose to focus on. I think we need to get out
17 ahead on those issues. If we succeed, right, we
18 can reduce harm to the economy and to lives and
19 livelihoods. I don't think we have the option to
20 fail, so with that, I appreciate you all being
21 here. Happy Mardi Gras, welcome to D.C., and
22 have a great meeting.

1 (Applause.)

2 CHAIR SAADE: Thank you, Nicole.

3 Well-received on the challenge, so I think that's
4 really great to spell those out. So a warm
5 welcome back to Rear Admiral Gallaudet. He has
6 remarks to share. His full bio's in your
7 materials. You'll find his full bio is in your
8 materials for review.

9 He's the Assistant Secretary of
10 Commerce for Oceans and Atmosphere for the
11 Department of Commerce in the National Oceanic
12 and Atmospheric Administration. He was
13 previously a rear admiral in the U.S. Navy with
14 experience in weather and ocean forecasting,
15 hydrographic surveying, developing policy and
16 plans to counter illegal, unregulated and
17 unreported fishing, as well as assessing the
18 national security impacts of climate change.

19 So, Rear Admiral Gallaudet, if you'll
20 go ahead please. Thank you.

21 RADM GALLAUDET: Thank you very much,
22 Ed and Julie. Thanks for having me here. It's

1 good to be back with this great panel, and I also
2 want to recognize again our three newest members,
3 Captain Ann Kinner, Captain Anuj, and Deanne.

4 It's great to have you on board the team.

5 So just first off, I want you all to
6 know how much I value the recommendations of this
7 great body, and it's as you've heard me brief in
8 several other venues, you know, the Blue economy
9 is one of our top priorities, and you do so much
10 to advance that priority.

11 I thought our meeting in Juneau last
12 week was or last time was just terrific. I had a
13 lot of fun. Thanks again for hosting us, and we
14 got some good work done, so that was -- that was
15 great. I also want to welcome our colleagues on
16 this plenary panel here, Admiral Nadeau and Tom
17 Smith from the Army Corps and Coast Guard
18 respectively.

19 It's great to have you on board. We
20 sit on the Committee for Maritime Transportation
21 or Marine Transportation System, and that's a
22 really important body that does great work for

1 our nation. So it's great to have our partners
2 here.

3 So first off, you know, in navigation,
4 there's a thing called a position report. You
5 know, a ship will kind of get a fix and make a
6 report usually to our headquarters. I thought I
7 would give you a position report on my position
8 because you might have heard recently that Neil,
9 Dr. Jacobs, and I have basically switched.

10 He is now performing the functions of
11 the undersecretary and Administrator, and I've
12 gone back to my -- the job I was confirmed for,
13 which is Deputy Administrator and Assistant
14 Secretary for Commerce for Oceans and Atmosphere,
15 Interestingly, you know, whenever big positions
16 in government change, there's usually a lot of
17 press, and it's not always good.

18 There wasn't much press about this
19 because of the simple fact that there really was
20 no drama. What Secretary Ross did is he saw that
21 we had gone really far in advancing our weather
22 priorities. We had just reauthorized the Weather

1 Research and Forecasting Innovation Act, and it
2 has some new things in it that are really
3 important that we've been pushing, and that's
4 really going to fast forward a lot of great work
5 like our model development and our observation
6 portfolio.

7 But meanwhile, I haven't been able to
8 focus on the wet side of NOAA's -- you know,
9 which is my job, because I've had the
10 Administrator function. So we all looked at the
11 sort of situation and we thought you know what?
12 Neil is kind of freer now to assume some of those
13 higher headquarters roles and interface with the
14 Department, and I'm now really locked onto our
15 wet side issues, which I am incredibly excited
16 about.

17 And so this, the work of this body,
18 advancing our navigation services is front and
19 center to that, along with other things. So
20 we're really going to work to address and get --
21 make more progress, whether it be through actual
22 activity or even legislation on issues like ocean

1 exploration, the National Oceanographic
2 Partnership Program, of course navigation
3 services and hydrography, and coral reefs, for
4 example, and conservation of those and others
5 that I could mention.

6 Our fisheries, I think, are also at
7 the top of the list and growing aquaculture.
8 Those are some of the things that I'm very eager
9 to move forward and thus the change. So the
10 story is our priorities haven't shifted a bit,
11 and actually just for me personally I'm going to
12 be able to focus more on what I was confirmed to
13 do.

14 And so this body is now going to take
15 even more time and attention, and so you'd better
16 watch out. So let me talk a little bit about
17 also with the maritime sector right now. It is
18 every day where I see some new press report about
19 the increasing activity and importance of our
20 maritime sector and the maritime regions.

21 If you just look at some of the
22 examples, you know, Carnival, four more ships

1 that were ordered this year. I mean every major
2 cruise line has added -- is adding ships and
3 bigger ships. You look at our U.S. seaports.
4 They're all growing.

5 I've been to San Diego, I've been to
6 Charleston, which is adding a new terminal, I've
7 been to Miami which just completed a cruise
8 terminal, et cetera, et cetera. You look at the
9 port of Portsmouth. Portsmouth has doubled its
10 capacity over the last few years, and the story
11 keeps on going.

12 So it's a very exciting time because
13 our work here as a body has never been more
14 important. So you have that. Then there's the
15 national security aspects of it, which you
16 mentioned, Nicole, which is also becoming
17 increasingly important, and then there's the
18 things that I've talked about earlier, like
19 trying to reduce our seafood trade deficit.

20 So mapping our EEZ and habitats within
21 them to properly manage our fisheries is now
22 taking another, really a sense of focus for our

1 agency. And so, you know, the Ocean Policy
2 Committee of the White House is finally getting
3 on step, and now one additionally, it's getting
4 attention by the new White House Science Advisor.

5 It's a guy named Dr. Kelvin
6 Droegemeier. Anybody here meet him? Raise your
7 hand if you have. Oh, very good. Great guy.
8 He's a meteorologist, so that's one. Secondly
9 though, he's just got tons of energy and genuine
10 I mean concern for our country.

11 So his goal is to really lead a new
12 era, have the U.S. lead a new era. He calls it a
13 second bold era in American research and
14 development, and he's referring to what happened
15 after World War II, where the government led the
16 initiatives which sort of built the space
17 program. They did all these great things in
18 technology advancement, and he sees us being in
19 the same exact position, and Nicole addressed
20 this in her initial comments.

21 But the difference is that the private
22 sector is now taking on the larger role. So

1 that's something we're going to capitalize on.
2 And then -- and so there's that. That's
3 exciting. So with that, we have a kind of back
4 story of a lot of great work over the last time
5 since we last met in Juneau.

6 Just let me tick off a couple things.
7 Andy Armstrong being named to the Hydrographic
8 Society of America's Hall of Fame. So you're
9 going to take a -- yeah.

10 (Applause.)

11 RADM GALLAUDET: We have Juliana,
12 since her great National Geodetics Survey, has
13 taken on these GRAV-D, you know, Gravity for the
14 Redefinition of the American Vertical Datum
15 surveys in Alaska. You've done the mainland
16 Alaska, you're going to do the Aleutians, and we
17 addressed that at the AMEC, and so here we are.
18 We're already underway and making way on the task
19 we identified during that meeting.

20 Really important, because all our
21 charts tie to that, and I mean everything.
22 Anybody who relies on positioning, which is

1 everybody, depends on the great service of NGS.
2 So we've done that. We've done some great things
3 in terms of technology advancement for surveying.
4 We have experimented -- not experimented. We've
5 operationally employed unmanned systems. We've
6 used them, unmanned surface vehicles for
7 hydrographic surveying.

8 We've also been experimenting with
9 UAVs to do shoreline mapping. We did this off
10 the Thomas Jefferson this year, and then of
11 course we've been doing the straight stick bread
12 and butter survey work that's so important.
13 We've been doing this in Alaska. We did great
14 response work off Puerto Rico.

15 Look at it, Shep is smiling ear to ear
16 because I'm just telling him what a great job
17 he's done. Then we've done the great Navigation
18 Response Team work right after Hurricanes
19 Florence and Michael, all opening up our
20 waterways, which had significant obstructions in
21 them.

22 So as you can tell, I couldn't be more

1 proud or excited of the great work we've done in
2 our Hydrographic Program and the Ocean Service in
3 general. I got to visit one of Rich Edwing's not
4 newest sites but upgraded sites for water level
5 monitoring in Annapolis, Maryland, and that was a
6 real treat I got in there.

7 I didn't get to dive with your folks,
8 who dove the day before. I just missed it. That
9 will be next time, but I did get to see -- help
10 them install some of the infrastructure pieces of
11 that. So I really like that.

12 And so I'll leave it -- actually, one
13 more thing to mention. I'm working with Admiral
14 Nadeau here to make NOAA data more available via
15 AIS. We have an IOC, I think, targeted for about
16 2020. But it's a big push of mine. Information
17 technology is allowing for that. It's going to
18 provide for more safety, and as we saw with the
19 El Faro mishap and loss, that we can avoid things
20 like that and increase safety for our mariners by
21 getting our data out there on these coms networks
22 that are available.

1 So that's all awesome. What is next
2 ahead for us is that we are going to -- I will
3 chair the Committee on Marine Transportation
4 System starting this summer. I'm very excited
5 for that. I'd ask this body to think about what
6 I can do in that capacity for our country and for
7 the specific area that we oversee in hydrography
8 and hydrographic services. It's a great
9 opportunity there. We are excited to show
10 leadership in that area. It's so important to
11 our blue economy, and I know you all are going to
12 help us do that well.

13 We're going to keep on doing unmanned
14 systems development and operations, and an area
15 of increasing focus for the White House is the
16 Pacific. So we are going to work on really not
17 pivoting but expanding and strengthening our work
18 in the Pacific.

19 Admiral Smith just came back from the
20 Southwest Pacific Regional Hydrographic
21 Commission. Commission, yes? Yeah, and there's
22 work for us out there. I'm meeting with Admiral

1 Bob Sharp. He's the NGA director this Thursday,
2 and we're going to talk about what we can do to
3 improve our charting out there.

4 It's an important area for the country
5 strategically, and we're going to meet our end of
6 that by improving our hydrography and navigation
7 services out there. So with that, I want to
8 thank you for your time and attention, and I'll
9 look forward to us making big progress this week.
10 Thanks.

11 (Applause.)

12 CHAIR SAADE: Thank you, Admiral.
13 That's great, and we really appreciate
14 specifically your ability to focus on what we do,
15 and that I think that's going to be a beneficial
16 and a good challenge for the panel. I think I
17 can speak for the panel that we really want to
18 embrace the opportunity to take on those
19 challenges and respond in really meaningful and
20 useful ways. So thanks. We appreciate it.

21 RADM GALLAUDET: You bet, thanks.

22 CHAIR SAADE: I have a couple of

1 quick housekeeping items that I'm supposed to
2 cover. So when you all speak, try and get a
3 little bit closer to the microphone. Yours was
4 perfect, Admiral, so --

5 RADM GALLAUDET: Of course.

6 CHAIR SAADE: Yeah, of course.

7 (Laughter.)

8 CHAIR SAADE: I'd also like to
9 recognize that there's a few of the panel members
10 that couldn't make it to this particular meeting
11 for a variety of reasons. A couple of them are
12 listening in, and that would include Kim Hall,
13 Lindsay Gee, Anne McIntyre, and Larry Atkinson.
14 So we'll miss them, but they are doing their best
15 to stay engaged with us.

16 Okay. Next on the agenda, we're going
17 to hear from Thomas Smith from the U.S. Army
18 Corps of Engineers. NOAA and USACE work is
19 ongoing and a top interest for the HSRP, and we
20 actually have some position papers on that. So
21 if you would, Mr. Smith, please take us on.

22 MR. T. SMITH: Thanks. Good morning,

1 Ed. I am Tom Smith from the Army Corps of
2 Engineers, and I do have a slide deck. I don't
3 know if it's necessary to show, but it might help
4 a little bit if you can -- I'll give you a moment
5 to pull up the slides that we had sent over.

6 Anyway, while they're doing that I
7 would say that it is busy week in Washington.
8 General Spellmon, who's currently the chair of
9 the CMTS, is making remarks at another forum.
10 But I appreciate the opportunity to talk to this
11 panel. I have not had the opportunity to work
12 with the Hydrographic Services Review Panel
13 before.

14 So as I was, you know, came over with
15 some information, I think, to share about the
16 Army Corps of Engineers, I'm looking at the
17 cross-section of people there and realize that
18 some of you have a great depth of knowledge about
19 what we do. So maybe some of this is a little
20 bit of an overview for a couple of folks, and
21 then maybe a couple of technical points that are
22 probably more relevant to the panel. So if you

1 can go to the next slide.

2 I do tend to -- the function. Oh, it
3 is on me to do this. Okay, so is that the main
4 button there? The green arrow, okay. All right,
5 I got it. I'm good.

6 So, you know, we typically or I
7 typically use this slide, but it's speaking to
8 the choir here that we're a maritime nation,
9 despite our great physical expanse, that we move
10 \$2 trillion of commerce through our systems, both
11 ports and inland system every year. Significant
12 number of short tons, both in foreign goods. It
13 says on this slide 2015 date, 1.3 billion short
14 tons and almost a billion short tons
15 domestically. But for the part that I'd like to
16 call your attention to, because we sit here with
17 our federal partners, and you know when I go back
18 to my headquarters, we're consumed by our own
19 role.

20 But really we have a shared role with
21 our partners here about maintaining this
22 navigation system, and the Army Corps of Engineer

1 part is maybe focused down on those lower, those
2 last two bullets, really the last three, that
3 there are -- the federal government over time has
4 basically taken some level of responsibility for
5 1,000 ports and harbors around this nation, and
6 13,000 miles of coastal and deep drift channel,
7 12,000 miles of the inland system.

8 In other words, you know, the federal
9 government has said that it is part of its
10 responsibility to maintain the depth, the width,
11 and basically the navigation capability of those
12 channels and ports. That's a huge statement.

13 Now by making -- by making it part of
14 the federal inventory and the responsibility that
15 we have partly with the Army Corps of Engineers,
16 it doesn't mean that we get -- that we accomplish
17 that mission every year. In fact, we go through
18 a performance-based budgeting process that many
19 of you are familiar with if you're in the federal
20 government, where we look to say well what --
21 with the federal resources that are available,
22 how much -- how much of that inventory, how much

1 of those 1,000 ports and harbors, how much of
2 those 20,000 miles of channel, 25,000 miles of
3 channel, can we maintain to the depth that was
4 authorized, to the depths and widths that were
5 authorized by statute.

6 So this brief slide just tries to
7 highlight that our navigation projects, we use
8 kind of a performance tool that talks about high
9 use, medium use, and low use, and as we go
10 through our budgeting process, we focus resources
11 primarily on those. We do get direction from
12 Congress every year or every other year in some
13 of these statutory provisions and the Water
14 Resource Development Act that -- while we also
15 need to do ten percent to emerging harbors and
16 other things. But what that means to us is, is
17 that we -- working with really private industry.

18 The dredging community, contractors,
19 and others who kind of support or survey capacity
20 spend virtually all of our time trying to
21 maintain these channels, and it is not an easy
22 task. You talk -- I'll talk briefly in a minute

1 about some contingency response. But we own 122
2 survey vessels.

3 We also get support from contractors.
4 We get support from our federal partners, because
5 it's a dynamic system. You know, the mystery of
6 the sea is dynamic, and at no given point of time
7 is it with absolute certainty -- or at least over
8 a period of time with certainty that the
9 navigation industry expects of us.

10 So I just wanted to highlight then, if
11 that's a little bit of a survey that we do spend
12 a good bit of our time in partnership with each
13 other and dialogue. So talking with Admiral
14 Smith and NOAA as a counterpart, you know, we
15 realize as our counterpart on the panel mentioned
16 about, you know, data ought to enable something.

17 It ought to enable another level of
18 service, another level of expectation, of meeting
19 expectations on the reliability, the speed, the
20 agility of information, and -- but those take
21 time. I mean it is -- it is a slow month to
22 month, year to year kind of journey that we keep

1 improving, but then we also find that the next
2 frontier is you in front of us.

3 So, you know, recently sat down with
4 NOAA to talk about, you know, our need to use the
5 data, some of which we generate, to enable, you
6 know, obstructions, better knowledge of
7 obstruction surveys and increased confidence on
8 information we provide to NOAA that can go on
9 their charts.

10 And so these are the type of issues
11 that we're working with them on. We recognize
12 they're important, and I will stay committed, and
13 I think this may kind of be something that's
14 worth some discussion over the next couple of
15 days.

16 One of the main tools we bring,
17 something that we've invested in quite a bit that
18 we find has been very helpful for us is this. We
19 call it eHydro. Some of you may have been part
20 of the formation of it. Some of you may have
21 given us feedback on it, or certainly you're
22 welcome to do that as we go forward. But this is

1 a publicly accessible, this, by the website. But
2 it is how we're taking the survey, those 122
3 survey vessels that are out there every day,
4 surveying our channels and ports and harbors and,
5 you know, through this data management tool kind
6 of making it available to NOAA, and then enabling
7 it to be visually displayed on the products like
8 you see there.

9 So it is improving our consistency.
10 I mean we have some internal challenges about our
11 own discipline, which is really, you know, in
12 order for you to count on the data you have, you
13 need to know that it's being developed, posted,
14 and quality controlled to the extent that what
15 you see can be relied upon for the importance of
16 the industries and the different functions you
17 represent.

18 But we're really, we're really --
19 we're betting big on this tool. It's been out
20 for a few years now, but we're kind of pushing
21 harder on our internal compliance, and then some
22 of those previous things I mentioned about

1 working with NOAA and where we go with it.

2 It's interesting that emergency
3 response came, you know. It doesn't get quite as
4 much attention when it's not quite a life safety
5 issue. But there's an emergency response going
6 on right now in a sense. We have an enormous
7 navigation challenge in the Southwest Pass.

8 I think one of our members, panel
9 members here can talk about to us at length,
10 because he talks to the Army Corps of Engineers
11 about it at length. But you know, since about
12 November or December, we saw a rapid shoaling in
13 the Southwest Pass, which leads to four of the
14 major port systems in the country and then the
15 entire inland navigation system. So it's
16 affecting agriculture and many other exports.

17 And just to -- so while I sometimes,
18 and I do have a brief mention about emergency
19 response in the sense of life safety in Puerto
20 Rico in response to hurricanes, this is a mission
21 that is consuming a significant amount of our
22 attention, and it's taking all the technology

1 that we have and all just the physical brute
2 force of dredging and other tools every day.

3 That snapshot, I don't know how well
4 it can be seen, it's, you know, really is -- we
5 run on our own common operating picture back in
6 the Army Corps of Engineers headquarters. It's
7 literally where every dredge is in the system and
8 their performance and how much they're doing.
9 And quite frankly, as Sean was telling you this
10 morning when we came in, we've got an additional
11 three feet of draft restriction over the last 24
12 hours.

13 So the amount of water in the system
14 now, I think someone else made mention of it, is
15 causing tremendous challenge to us. So these
16 surveys are going literally every day. We survey
17 it so that we can immediately provide it to --
18 through the Army Corps of Engineers to our
19 private industry contractors, so they can remove
20 sediment deposited and then virtually at this
21 point, I suppose we're not even keeping up, I
22 guess is fair to say, and we can take some

1 questions.

2 So that's one use. You know we do
3 obviously partner during the big events, you
4 know, the life safety events that shut down
5 significant regions in terms of their ability to
6 do all manner of things, including commerce. So
7 we wouldn't do it alone, we can't do it alone.
8 Certainly the Coast Guard, you know, governs much
9 of what we do there. But we partner with NOAA on
10 survey vessels. We contract out for them, and I
11 think some of the other things we've done through
12 the CMTS and others have shown that we're getting
13 better at this because practice does make you get
14 better. But we have more to go, you know. We
15 can reduce those efficiencies.

16 We're not without challenges. As I
17 said, those 25,000 miles of channel and 1,000
18 ports, you know, has tremendous interest
19 throughout the country. Someone made mention of
20 the shipbuilding at Carnival. Well all of our
21 ports, as you know, all want to go deeper because
22 the ships are getting bigger, and so we have

1 tremendous pressure on us to both authorize and
2 then deepen and then maintain those channels.

3 But the challenge is, you know, if it
4 is a federal responsibility, you know, the
5 commitment of long term operation and maintenance
6 to those channels is always a concern. So we
7 work through that with cost and then like many
8 others in the industry, you know, a lot of our
9 fleet and a lot of things we do to actually
10 accomplish this mission does, you know, does
11 require continuous discussion with our
12 environmental partners.

13 I think that we're dramatically better
14 than we were, but we have continue to have
15 discussions over year to year, week to week on
16 that.

17 I would say, and I'll probably stop
18 with this slide instead of going into some other
19 things, that just like this panel's focused on
20 some of the technical things and the use of data
21 to basically improve our ability to deliver on
22 our missions, we believe the same thing in the

1 Army Corps of Engineers.

2 So it is not just through the data
3 that we collect that can inform NOAA and the
4 charts they produce, but we believe that it's
5 actually a game changer for how we deliver our
6 mission in dredging. And so we are taking data
7 that we're getting from survey and building
8 channel portfolio tools that we hope are going to
9 enable a more, in some cases, surgical approach
10 to where we dredge.

11 Maybe we can group projects better,
12 maybe we can better understand how the
13 environmental windows are affecting our mission.
14 So all of those things are kind of influence, or
15 try to be shown on this graphic here, which is
16 really kind of foundational to what we do.

17 If we can move from -- because of the
18 experience-based knowledge we have, which has
19 taken us quite far, and now add the additional
20 context you get from just sitting back and
21 looking at a lot of information about, you know,
22 what happens month to month and year to year and

1 see if you can do it better. That may be of
2 great benefit to us.

3 So I did have one more, but I think
4 I'll just stop there, and just say that I do
5 appreciate being here. I know that as I say,
6 General Spellmon, who's the chair of the CMTS at
7 this point is at another engagement but would
8 prefer to probably be at this one. But I'm
9 excited that I was invited, and I hope that this
10 brief overview of the Corps of Engineers and some
11 of the things they're working on are of value to
12 the panel. Thank you very much.

13 (Applause.)

14 CHAIR SAADE: Thanks, Tim. Thomas,
15 sorry. I'm still there.

16 So our next speaker is Rear Admiral
17 Nadeau from the U.S. Coast Guard. NOAA and the
18 Coast Guard obviously work together a lot, and
19 there's an ongoing top interest for the HSRP in
20 past topics that we've covered, and as well as
21 I'm sure we're going to have some more right now.
22 So without any more delay, Admiral Nadeau.

1 RADM NADEAU: Good morning. Thanks
2 Ed, thanks Julie. Shep, it's great to see you
3 again and our distinguished guests up here. It's
4 great to be with you this morning. When I listen
5 -- I'm a little bit humbled. When I listen to
6 your background and your expertise, I'm always
7 amazed sometimes that -- I'm humbled to be with
8 you all. Put it that way.

9 And we have, as we have a few federal
10 advisory committees that we work with as well,
11 and I've got to tell you Shep that ours aren't
12 managed quite like this, so I'm taking some notes
13 to take back home with me. Thank you. Best
14 practices, if you will.

15 RDML S. SMITH: That's true.

16 RADM NADEAU: Well, did I just hear
17 that? Did someone else hear that as well? Great
18 to be with you. As you've already heard --

19 (Laughter.)

20 RADM NADEAU: Talking about what this
21 nation has, and when we talk about the marine
22 transportation system, that 25,000 miles of

1 waterway and then the 95,000 miles of shoreline,
2 the 361 ports that are connected by that, we have
3 roughly almost 50,000 aids or buoys and different
4 other aids that help mark that waterway.

5 At this very moment, as we sit in this
6 room, there are thousands of vessels navigating
7 throughout that system safely and securely. And
8 in doing so, are moving and we like to say it's
9 \$4.6 trillion of economic activity. 4.6 trillion
10 dollars of economic activity that's supported by
11 that system of waterways, vessels, all the
12 workers, the 23 million U.S. jobs that are
13 supported by that as well.

14 And as you heard, that system, that
15 whole network, which is a gift to this nation;
16 most nations don't have a gift like that, that
17 system, this gift we enjoy is what makes us
18 really a superpower.

19 And if you listen to the Four-Star
20 that has the great pleasure to manage the
21 Transportation Command, if you hear them testify,
22 they'll often say that, you know, we're a

1 superpower because we can move our U.S. military
2 forces when we need to, anywhere we need to, any
3 time we want to, and you don't do that without an
4 effective system of waterways, ports, ships,
5 mariners, partners, stakeholders to make that
6 machine work.

7 So it's great to hear that. Everyone
8 in this room I think knows that story. But it's
9 good to remind ourselves just how important this
10 treasure, this gift we have is to the economic
11 prosperity and our national security of this
12 great nation that we all so enjoy.

13 The Commandant, now we have Admiral
14 Karl Schultz, soon after he came and took over
15 last June, the first kind of big strategic
16 document he signed out, he's only had a couple,
17 was this one, the Maritime Commerce Strategic
18 Outlook. And it's a nice glossy, some beautiful
19 pictures. But it's boiled down to a couple of
20 key points, again which is not lost -- I know
21 this crowd would know these.

22 But you know, three lines of effort

1 there you see. Facilitate lawful trade and
2 travel in secure waterways, modernize our aids to
3 navigation and mariner information systems, and
4 transform our workforce capacity and our
5 partnerships. And baked within that there are
6 several objectives. I won't go through them all.

7 But if you're not familiar with this,
8 I'd encourage you, based on where I think you all
9 work, it might be good to flip through it at some
10 point, just to see where we're going.

11 We see this as a ten year vision for
12 where we believe the Coast Guard needs to be, and
13 how we need to work with our partners and all
14 stakeholders to make sure that we deliver and
15 continue to protect this gift, and ensure that
16 future generations -- I want my grandchildren be
17 able to enjoy it as I have, and benefit from it
18 as we all have.

19 So that's what is packed into this
20 again, document. We are very happy to see it
21 come out because for the preventions missions
22 that I have the good pleasure and the honor and

1 the privilege to support every day, we never
2 really had something like this within the Coast
3 Guard that clearly articulated what it all means,
4 and this kind of ties to all together.

5 So I'll just name a couple that might
6 be of interest to you. First I think is of
7 course modernizing aids to navigation and mariner
8 information systems. You heard Tim kind of
9 mention this.

10 We are, and I'm not an expert in this
11 area. Some of you might know Mike Emerson. He
12 is the director for the Marine Transportation
13 System within Coast Guard headquarters, and
14 Mike's got the ball on this. He's doing a
15 fabulous job with his team.

16 I look at it as I'm a big fan of Lyft
17 and Uber. I love it. You know, I used to wonder
18 why I'd possibly want a phone I'd get email on;
19 now I wonder what I'd do without it, right. Who
20 uses it as a phone anymore? But the idea that I
21 can go outside and get a ride, go anywhere I want
22 right now, without having to call a cab, wait,

1 get some guy who doesn't speak English and now I
2 use Uber.

3 When I drive home at night, if you
4 live in this D.C. area, I'm sure a show of hands,
5 who uses Waze, right, that app Waze. That allows
6 me to get home. I don't have to -- I can still
7 read a map. I try and taught my two Boy Scouts
8 how to navigate using a compass. But let's face
9 it. I mean that's just not the way how we do it
10 today.

11 So when we look at mariners of
12 tomorrow, the idea that they're going to be
13 laying out charts, right? It's not how it works
14 anymore. So what's the ways for the waterway?
15 That's where Tim I think is pushing us and
16 rightly so. John, let's go, we've got to get
17 there.

18 To get the information that the
19 mariner needs presented in a format that they can
20 use, that they're used to seeing because they
21 grew up using it, and allows them to make risk-
22 informed decisions at every point along that

1 transit. It's real-time information, real water
2 levels, real tide and when it's a pothole in the
3 road and I get notified and I know, or there's a
4 wreck in the road and I get notified and I know,
5 that same type of real-time information presented
6 to the mariner in a fashion they can use it.

7 That's what I dream of having out
8 there, and we're slowly working towards. It's
9 not to say that we are going to take away the
10 physical aids. People think we're moving to
11 electronic navigation. You'll never see these
12 buoys out there anymore.

13 That's not true. Just like I love
14 having Waze and I love having Google Maps. But I
15 still want to see the sign when I'm going right,
16 to make sure that I've got the right road. Or
17 when I'm not getting any service on the stupid
18 thing, I need to see the signs.

19 Same thing on the waterway. We want
20 to use the information and project it and give
21 the best tools. But when we need a resilient
22 waterway and a resilient waterway is going to

1 have physical aids.

2 So that whether it's storm damage or
3 some 16 year old in North Korea decides to take
4 down the GPS somehow, we can still operate. We
5 can never lose sight of that. We still need to
6 operate and keep that system functioning.

7 So that's where we're headed. We want
8 to get more information. PORTS over AIS Tim
9 mentioned. Again, electronic aids, we've done
10 some of this now using the NAIS system, where we
11 can broadcast a position. So there may or may
12 not be a physical aid there, but if you're on
13 board when you're looking at the display, you
14 will see an aid there, just as if it was, and
15 we're doing more of that and that has come out
16 very handy, recently in the hurricanes.

17 In advance of a hurricane, we know
18 it's coming, we'll quickly post some magic and
19 some people work some strings, and the next thing
20 you know, those aids are marked electronically.
21 So if the real aid gets washed away, the pilots
22 go back to work as soon as our good friends say

1 the channels are clear. You may not have
2 physical aids out there, but they've got
3 electronic ones.

4 There we go. And lastly, just a
5 slide, you know. We've worked closely with NOAA
6 and the Army Corps for a long time. We've had,
7 just doing the math, we've had people at the
8 National Data Buoy Center since -- well, for 92
9 years is what we've said.

10 So we're there, we're tied at the hip.
11 We need to be, as federal agencies we need to
12 work together and partner. You heard us all have
13 the same theme. We all recognize the value of
14 this gift that this nation enjoys, and we all
15 recognize that we need to team together to make
16 sure that we're being smart about how we go out.

17 Again, maximizing the utility and the
18 efficiency, because as ships are getting bigger
19 and bigger, most of the waterways are not getting
20 any deeper or wider and it's just greater
21 congestion. There are more users, more
22 recreational boaters we see out there.

1 Paddleboarders going through downtown
2 Chicago and New York. I never thought I'd see
3 it. It's a great thing, the water's cleaner,
4 they can do that. Automation, autonomous
5 vessels. It's all coming. It just makes things
6 more complex, and you add all that, there's more
7 of it, it's more complicated, more complex. And
8 then you add on the public, the stakeholders in
9 general expects us to minimize the environmental
10 footprint on the system.

11 If you go to IMO, and many -- some of
12 you do, you see that the agenda there is occupied
13 with reducing the environmental footprint, which
14 is a good thing. That creates challenges for
15 industry, for operators to accommodate all those
16 demands. We're here to help, be a part of the
17 team, deliver the solutions that are going to
18 make this all successful in the future. Thanks
19 for having me.

20 (Applause.)

21 CHAIR SAADE: Okay, thank you Rear
22 Admiral Nadeau. Okay. It's time for questions.

1 We've got, we've got some good -- a good gap here
2 to be able to ask some questions of, particularly
3 from the panel. But we're going to kick it off
4 with Shep.

5 RDML S. SMITH: Thank you, Ed. Thank
6 you to the panel. It's a fabulous panel,
7 particularly towards the headquarters level folks
8 from Army Corps and Coast Guard. We usually have
9 more regionally focused of your colleagues, and
10 this panel has often pressed them on questions
11 that are really should be to you.

12 So I hope that they remember, that the
13 panel remembers all those questions, and now that
14 we -- now that we're here in Washington and can
15 sort of speak from the agency level. But I did
16 want to -- I did want to share one epiphany.
17 I've been passionate about improving our services
18 to ports, particularly the charts, because I
19 think it's been really ineffective for a long
20 time as technology has moved on, and we're doing
21 that now.

22 But as I started to look for models

1 for how other nations, and I have an
2 international role, so I get a chance to talk to
3 my international counterparts quite a bit, what
4 are other nations doing about this? And they
5 always just gave me this blank stare, because
6 they said well, that's not my problem. The port
7 authority does that.

8 It slowly dawned on me that everyone
9 else around the world has these really strong
10 port authorities, with levy -- the ability to
11 levy taxes on the ships using the waterway, pay
12 for the dredging, they do, you know. We have
13 federalized all of that, and so that the duties
14 that are -- and services that are provided,
15 particularly information services and navigation
16 services that are provided by port authorities
17 around the world are jointly provided by our
18 three agencies across the whole nation.

19 So you know, I don't think that we
20 generally think of ourselves as the port
21 authority for the United States but that -- I
22 think we do serve that role. And many of the

1 initiatives that we have been jointly undertaking
2 to improve the services to ports in the U.S.
3 really sort of are more like the community of
4 practice of port authorities.

5 So anyway, I wanted to share that
6 epiphany, because I think it's a really helpful
7 way of thinking about one segment of our
8 services. It's certainly not everything we do,
9 but one segment of our services. With that, I'll
10 turn it back to the panel.

11 CHAIR SAADE: Thank you. Okay. Who
12 wants to go first? Ann.

13 MEMBER KINNER: Part of how I got here
14 is about five years, the sea buoy in San Diego
15 sank, and at that time -- move a bit closer? At
16 the time, what I was told was that the intent was
17 not to replace it, but was to put an AIS signal
18 out there.

19 I mentioned I've had 35-odd years with
20 the recreational boating community. I deal with
21 boats of all sizes frankly, but a lot of small
22 ones. And after considerable discussion, we had

1 NOAA, we had the Coast Guard there over my chart
2 table looking at the chart and talking about the
3 issue of AIS accessibility and the fact that a
4 lot of people, me included, relied on a physical
5 object which showed up on radar, which had a
6 white light, which had a RACON and a bell, and
7 which if it was not replaced I couldn't see.

8 And that really got me concerned,
9 because I'm dealing with the little guys, and the
10 little guys don't have access or don't know about
11 how to use a lot of the technology. I love the
12 technology. I use a navigation software program
13 on my computer for planning. But I won't go
14 anywhere without a physical paper chart, a pair
15 of binoculars and some understanding of what it
16 is I'm going to be looking for.

17 And it concerns me when I see
18 everything kind of leaning toward this magic
19 electronic signal, which is subject to
20 interference. There was a recent notice put out
21 about LED lighting interfering with AIS if it's
22 not placed properly. This came out of Maritime

1 Commons.

2 There have been things put out about
3 interference and hacking of the GPS system. I
4 love my GPS, but again I use my eyes and a paper
5 chart to confirm that I am where I think I am. I
6 want to know for sure that the guys in my tier,
7 predominantly in my tier, and I am an owner of
8 two boats at this point -- well, one of them has
9 AIS, the other one doesn't.

10 But the point is I'm a little guy, and
11 I represent a lot of little guys, and they don't
12 know a lot about what this is being -- that this
13 subject is being discussed, let's put it that
14 way.

15 It's tough enough explaining to them
16 how to read a chart, and then to have to explain
17 to them well, you might not see a physical aid
18 out there because you're going to have a symbol.
19 Where is it going to show up? Well, do you have
20 radar? Yeah, but do you have an AIS receiver?
21 What's that. That's what I deal with every day.
22 So I'm really concerned about the little guys and

1 to some extent the intermediate guys who have
2 gotten too complacent about using the toys. I
3 call them toys, because to me in some respects
4 they are toys.

5 There's a book out there, it's been
6 out for a while, Bridge Resource Management, and
7 it's a whole series of case studies of people not
8 looking out the window when it comes right down
9 to it, and thinking that the screen in front of
10 them was going to keep them safe, show them
11 exactly where to go and solve all their problems.

12 So I want to know more about this push
13 towards eNav, but I also want to know how is it
14 going to integrate with something physical, so
15 that the little guys are going to be okay.

16 RADM NADEAU: I would offer -- I think
17 we're in complete agreement. I see the new
18 technology supplementing what we have, not
19 replacing it. I think that it provides the
20 ability, in fact it enhances the capability.
21 Again, once -- if they -- if we are able to
22 market within a symbol that shows up on an

1 electronic chart, if the physical aid is removed
2 somehow due to storm or hurricane, I still have
3 something there.

4 So that if I'm not able to replace
5 that aid yet physically, and the pilots want to
6 start moving going down the river and they have
7 sufficient water, I can let them go. At least
8 there's something there for them to see;
9 otherwise, there would be nothing. So we would
10 supplement it and in all cases, like maybe I
11 should have prefaced this.

12 We are engaging the stakeholders to
13 tell us what are the user requirements for this
14 waterway. We don't set off on our own and sit
15 back in our glass palace trying to figure out
16 where we think the buoys should be and how they
17 should be marked.

18 They should be talking to smart people
19 like you that are actually on the water and the
20 stakeholder groups. We've done these WAM
21 studies. We've done it on the east coast, we're
22 doing it right now on the western rivers, we're

1 doing the Pacific, to really help us understand
2 where we need to be.

3 There are drivers. There's costs. So
4 we're always under pressure to cut back on
5 physical aids. That's a fact, but we want to
6 make sure we're meeting your needs.

7 MEMBER KINNER: And just as a comment
8 on that, and it partly has to do with outreach
9 and education. When this was being proposed,
10 there were I think four meetings, four public
11 hearings on the east coast, one on the west
12 coast. Through making a little noise, we got a
13 second meeting in Long Beach, out of which came a
14 third meeting in San Diego.

15 And that became -- that happened
16 because a couple of us heard about it and said
17 wait a minute, we need to know more. You need to
18 know more, and the public wasn't really aware
19 that it was even being considered, because the
20 consideration was don't replace the buoy.

21 And I said oh no, no, no. I don't
22 want to come into San Diego Bay at night with

1 this series of lights where I can't find the buoy
2 because there's no RACON. That changed the
3 decision to just put AIS to okay, put a temporary
4 buoy and eventually we got the old one. Well, we
5 got a refurbished buoy back.

6 But there wasn't, and I understand
7 there are more ports on the east coast, but
8 there's a lot of coastline on the west side too,
9 and there are a lot of boaters out there.
10 Somehow they weren't getting the information that
11 this was even being considered.

12 So what I'd like to see, and I don't
13 even know exactly how you go at it, whether you
14 enlist power squadron, Coast Guard auxiliary
15 people like that, but to get more word out
16 forcefully to the small boat fleet, so that they
17 know something is being considered that might
18 have an impact.

19 RADM NADEAU: Thank you.

20 CHAIR SAADE: Okay. Thanks, Ann.

21 Anybody, anyone else have a question? Ed? Ed,
22 number one.

1 MR. T. SMITH: I'm number one. That
2 will always be me, Ed.

3 (Laughter.)

4 MEMBER KELLY: Don't start with old
5 Ed, young Ed. That's not going to work.

6 Mr. Smith, just a question. In past
7 meetings, we've had discussions where it seems
8 that although everybody's working for the common
9 good, we sometimes find that there are in fact
10 silos within the organizations.

11 Where do you see the best
12 opportunities for the three key agencies involved
13 in the MTS sharing resources, data, et cetera,
14 particularly data in these cases, survey results,
15 working together to determine proper areas for
16 surveys? Where do you see are the best
17 opportunities for synergy?

18 MR. T. SMITH: So, I mean, I think
19 let's just recognize that those silos do exist.
20 They exist when one of us gets ahead of the other
21 because we see something or a capability that's
22 emerging and begin to see it and it takes some

1 time before we kind of recalibrate.

2 So certainly at the national level, I
3 think it's a function of engagement, forms like
4 this, you know. I said Admiral Smith, meet with
5 me or my boss and our Coast Guard counterparts,
6 sometimes to these bigger organized forms like
7 the CMTS.

8 But often better on taking on a few
9 specific issues and kind of setting up some work
10 groups to take them on. That's at the national
11 level, and there are a few of those.

12 Some of them are chartered by the
13 CMTS, but in other cases, like I know that
14 particularly with NOAA on some of the data we
15 collect and how we share it, I listed four areas
16 where they're putting pressure on us to do a
17 better job of capturing data, so that it can be
18 made more available more quickly, and meet their
19 statutory responsibilities. So there's that.

20 I think, you know, maybe the Admiral
21 talked about, you know, at the regional level on
22 physical buoys that they're placed where they

1 need to for that purpose. I think there's
2 another level which is locally, where we have
3 people like this, you know, our command structure
4 has local leaders at the general officer and
5 colonel level and similarly with our partners,
6 that that has to take place at those levels.

7 They have to balance probably with a
8 better understanding of the needs of the
9 community, you know, what really are the
10 pressures? What is the type of movement? What
11 are the type of vessels? What are the challenges
12 literally in a specific place, because a traffic
13 jam has emerged because it is a new need.

14 So I don't know. Has that helped, Mr.
15 Kelly? I guess I want to recognize there is a
16 challenge, and we have to keep -- we have keep
17 communicating, sometimes through organized forms,
18 but then also just, you know, these
19 relationships, where we realize that one of us
20 has gotten ahead of the other and is pulling us
21 forward, and then one leapfrogs and tries to pull
22 the other forward.

1 But kind of a specific example of mine
2 that maybe my partners could kind of --

3 MEMBER KELLY: No, no. I was just
4 trying to see if there was a wish list. We all
5 recognize. We all work in organizations where,
6 you know, we have common goals.

7 We need to share information. I was
8 just trying to see if in fact any of the three of
9 you may have a wish list of where do you think
10 might be the best opportunity to improve some of
11 that information-sharing and cohesion that is so
12 necessary for the final product that we as users
13 use, because we as a port, you know, commercial
14 maritime and operation and a port, we rely on all
15 three of these agencies to coordinate, to give us
16 the products we need.

17 So we're just trying to see, is there
18 any wish list? Do you see any nail that's
19 sticking up that might, with a judicial bang on
20 the head of the nail might fix something for us,
21 make an improvement?

22 MR. T. SMITH: Tim has a wish list.

1 Tim usually has a list of things.

2 RADM GALLAUDET: I always have a wish
3 list. No, well there's a couple of things and
4 one was mission, using AIS as a means to
5 disseminate data, and it's a crawl, walk, run.
6 Hydro data charts, big data sets. But you know,
7 weather overlays are a simple one. So you know,
8 that's what we'll do and we're going to move
9 forward with that.

10 There are other things though, sharing
11 capabilities. One of them, you probably are
12 aware that in many of the dredged channel
13 surveys, sometimes often single beam echo
14 sounders are used by the Army Corps, which are in
15 kind of a rough cut just to get an initial
16 assessment, whereas if we were able to outfit
17 every boat you have with multibeam and use that
18 data in IHO order one type of capacity, that's a
19 survey.

20 So we're moving forward together in
21 that respect. I am really proud of the Army
22 Corps making advances in that area, and there's

1 others. In fact, I met with the Coast Guard
2 Commandant. Initially, our agreement was we're
3 going to share training facilities and
4 capabilities with unmanned systems, primarily
5 aerial systems for surveying and observing
6 illegal, unregulated and unreported fishing.

7 But then again, I told you about the
8 Thomas Jefferson doing initial, exploratory
9 shoreline mapping with UAVs. So we're getting
10 into a point where we're going to use data from
11 these systems to advance sensor technology for
12 everything, whether it be IAU, NDA, charting. So
13 that's kind of an area we want to move forward
14 to. So using, you know, sharing capabilities.

15 CHAIR SAADE: Okay. Ed P, thanks.

16 MEMBER PAGE: Did you do this to me
17 Ed? Tough competition with three Eds here. Ed
18 Page from Marine Exchange of Alaska again. And
19 all three of you, through your representative
20 agencies, serve on the community of the Marine
21 Transportation System.

22 I was thinking if there's any

1 discussion or asked if any discussion about how
2 LNG is changing a lot about maritime safety. I
3 worked Exxon Valdez spill for three years and
4 then OPA-90 implementation, and that was kind of
5 -- that's 30 years ago now.

6 That was a lot of opportunity for the
7 Coast Guard and other agencies to focus on oil,
8 preventing oil spills and responding to oil
9 spills, and then gave you the funding mechanism,
10 the Oil Spill Liability Trust Fund, to act upon
11 things when they were happening.

12 Now we're getting these container
13 ships that will have 20,000 TEUs, which is like
14 60 miles of containers end for end, and they may
15 be LNG powered some day and suddenly all these
16 prevention things oriented towards keeping oil
17 out of the water, the funding available to
18 respond to oil spills, these shipboard
19 firefighting salvage regulations all triggered by
20 oil, no longer oil's there, you know, and I think
21 there's still some risk of these huge vessels
22 operating.

1 So it almost seems to me that CMTS, go
2 look at that and hopefully Congress somewhere
3 along the way get an update or re-racking of the
4 OPA-90 type of prevention response capabilities
5 oriented towards, you know, maritime activity
6 that's changing now, that oil's not really the
7 whole issue, that maybe these containers floating
8 at sea is a problem and a shipwreck on the beach,
9 and certainly 60 miles of containers in Reese
10 would be a problem for you, Admiral Gallaudet.

11 Admiral Nadeau would be worried about
12 ships crashing into him and the Corps of
13 Engineers will be worried about clogging up the
14 channels. So we all have a role and this has
15 impact. So this is to me I think is the kind of
16 shift that we're seeing very quickly develop with
17 this LNG transition, and it really kind of
18 changes that, what your authorities are and
19 capabilities are and resources are based on this
20 change.

21 So I'm hoping that's something CMTS
22 can look at and I would -- I will talk to my

1 Congressional representative when they come visit
2 us and talk about the same context. Hopefully
3 they can see that maybe it's something they can
4 get behind to address these things.

5 CHAIR SAADE: Yeah. Ed, that's
6 great. As the incoming chair, I'm very keen on
7 that. I asked you outright for a recommendation
8 and you gave me a great one. You know, as an
9 administration official, I'm charged to support
10 the America First Energy Strategy and executive
11 order, and LNG is a huge part of that.

12 So we've got to balance the need, you
13 know, the good thing that that's doing for the
14 country. We're now a net energy exporter.
15 That's good. However, we've got increasing risk
16 in certain areas. So, but I think technology is
17 going to be -- allow us to advance it, as well as
18 data and information-sharing.

19 RADM NADEAU: The LNG, we are seeing
20 it, particularly in south Florida, and in coastal
21 around North America, our mission control area it
22 makes a lot of sense, but you're at a .1 percent

1 sulfur content. So it's a great option if you're
2 building new, and that's really where we're
3 seeing it.

4 Globally, it's not quite as -- picking
5 up as quickly. There are pockets of it on known
6 trade. But I don't -- I think we still need OPA-
7 90. We still need those -- at most, the vast
8 majority of ships will be carrying and running on
9 oil, less sulfur in that oil, for the rest of our
10 lifetime anyway yeah, until --

11 But LNG's a great option for local, if
12 you're building new or converting.

13 RADM GALLAUDET: Ed and members of the
14 panel, I apologize but I have to excuse myself.
15 I have another meeting at the Department of
16 Commerce. But thanks for allowing me to be here
17 today with you, and thanks for all the good work
18 you're going to do this week.

19 CHAIR SAADE: Thanks Admiral.

20 (Applause.)

21 CHAIR SAADE: Okay. We still have
22 some time for some more comments and questions.

1 Go ahead, Nicole.

2 MS. LeBOEUF: Sure. I'm hoping Ed, I
3 can include myself in the three. To answer your
4 question, I would love to see the federal
5 agencies that have coastal-dependent
6 infrastructure talk to one another about what the
7 future's going to hold. That includes sea level
8 rise, but it also just includes aging
9 infrastructure across the board.

10 I know that some of our sister federal
11 agencies are looking at this in a more concerted
12 effort than -- in a more concerted way than I
13 think NOAA actually is. But I think we are
14 starting to look at local areas where we can co-
15 locate, where we can be smarter about the assets
16 that we have there or recapitalization.

17 I don't see the U.S. Coast Guard, I
18 don't see the U.S. Navy, I don't see some of
19 NOAA's facilities moving inland, right. And so I
20 think it would be really good for us to work
21 together, perhaps under the CMTS umbrella or
22 elsewhere, to talk about what we're going to do

1 together, given that the data for a given area is
2 going to be shared information, and we have some
3 shared mission.

4 But I think overall, it's the -- it's
5 the how do we manage our assets as a unified
6 federal government, and send a smart signal to
7 the coastal communities about what we see as the
8 risks and not in these area where won't have, in
9 some cases, the choices to leave the coastal
10 zone.

11 CHAIR SAADE: Okay. I'm going to
12 throw a question at you, the three of you and
13 whatever other agencies here. With the huge
14 expansion of the offshore wind farm activity on
15 the east coast, the latest challenge to us as
16 contractors is unexploded ordinance on the sea
17 floor.

18 So I'm going to ask you if anybody
19 could answer the question, who has jurisdiction?
20 Between the Coast Guard and Corps of Engineers
21 and NOAA and the Navy, and the particular state
22 and BOEM, who's in charge?

1 RADM NADEAU: I'll start and then they
2 can tell me, correct whatever I say I guess.
3 Depends on where it is. If you're talking
4 offshore I guess, well beyond --

5 CHAIR SAADE: It's with -- it's
6 within the 14 -- it's within 14 miles of the
7 coast, and let's just say for argument's sake
8 it's in federal waters.

9 RADM NADEAU: Federal waters. Not
10 Coast Guard.

11 (Laughter.)

12 RADM NADEAU: I don't think it would
13 be -- we'd be more concerned, I guess our
14 authorities would be more tied to the vessels
15 involved in the operations, more so than the
16 ordinance on the bottom and how do you pick that
17 up and what do you about it. You still want to
18 bring it into port, we'll probably want to talk
19 to you.

20 But yeah, I don't know. I have a hard
21 time tying Coast Guard jurisdiction to something
22 that's sitting on the bottom 12 miles out.

1 MR. T. SMITH: So I think -- just Tom
2 Smith here, to make sure to answer the question.
3 I don't think it's us directly. So this is being
4 taped and everything else, we have to be careful
5 here. But there's a comparable problem we're
6 dealing with, and I'm not as familiar with the
7 unexploded ordinance one, which is pipelines and
8 there's pipeline growth everywhere.

9 We have, I mean it looks like we threw
10 a Verizon or AT&T commercial up here. That's
11 what the pipelines look like, the growth in
12 pipelines through all -- and we have federal
13 channels. Through federal channels, it's a
14 significant concern.

15 And we ask ourselves in meetings like
16 this with just our federal partners, well who
17 really owns the problem? No, I don't think
18 there's a single person. So we have several
19 efforts underway.

20 This won't get to the unexploded
21 ordinance, but it's a like problem I just wanted
22 to share, that these -- the complexities we deal

1 with a lot is we have several efforts to make
2 sure everything we know about what might be in
3 the water, in the sea, is made available to, for
4 example in the federal channel, to either our
5 dredge that might be dredging it, or to a private
6 contractor who's dredging.

7 But we have never come down to say
8 that we could provide 100 percent certainty, or
9 that we uniquely versus any other federal actors
10 owns that. So I don't know if that's -- I mean,
11 that's just what I understand to be the case now.
12 But it is a complex problem and I'm sure the
13 unexploded ordinance one you described is equally
14 challenging.

15 But like I said, if we put up a -- if
16 we turn the TV on and you saw an AT&T commercial,
17 that spider web is what it looks like down in
18 particularly the Gulf Coast. It is incredible,
19 so -- and it's growing. Yes ma'am.

20 MS. LeBOEUF: Yeah, Ed. So you asked
21 with regard to offshore wind as a preface to your
22 question. So NOAA and BOEM have a really nice

1 partnership. We've developed an online tool
2 called the Marine Cadastre, which is public-
3 facing. It has thousands of data layers in it,
4 and is very, very good at helping to inform folks
5 about what's out there under the water,
6 industries, et cetera.

7 It is very useful to the oil and gas
8 companies but others. We have just, are about to
9 launch in the next couple of months an offshoot
10 of the Marine Cadastre called the Ocean Reports
11 tool, and that is going to provide over 100
12 layers of data that are instantaneously analyzed.

13 You just draw a box in the ocean,
14 state waters, federal waters, whatever data sets
15 are available for that. You'll have a three-
16 dimensional picture of that neighborhood, you
17 know. If you're going to move into a
18 neighborhood and thinking about buying a home,
19 you want to know what the crime rate is, know
20 what the schools are like, how long is your
21 commute to work, you know, if there's zoning
22 issues nearby.

1 All of that kind of information will
2 be provided in the Ocean Reports tool. Now to
3 the degree that unexploded ordinances are already
4 on publicly-available maps, you'll see those
5 right away. But the Ocean Reports tool is really
6 just an opening conversation for wind, been
7 talking to the Marine hydrokinetics industry,
8 others that are looking to get into an already
9 very busy ocean, and they know it's very busy.

10 They want to get a little space and
11 they want to know if that space is usable for
12 what they're looking for. In addition to
13 detailed oceanographic information, current at-
14 depth, et cetera, it also provides someone like -
15 - excuse me, someone like NOAA an opportunity if
16 a member of an industry comes to us and says so I
17 found a spot. It looks good for what I want. I
18 think I'd like to have that first conversation
19 with, you know, Army Corps or NOAA or BOEM or
20 someone else.

21 And we say okay, let's take a look at
22 your spot, right, and then what we can do and

1 have begun doing is having a higher level
2 conversation even with clearance with the Navy
3 and others, who will help us better understand
4 their training ranges, the location of unexploded
5 ordinances and that kind of thing. We can work
6 with them in a way that the public can't, that a
7 new industry member can't.

8 But we can work with them to say okay,
9 here's their desired box. Is this doable, is
10 this no-go, and we can have those kind of
11 sensitive conversations with them and we've begun
12 doing that, to see if we can carve out as much
13 space as possible for new industries coming into
14 the ocean.

15 So when say wind farm, this is ideal
16 for wind farm developers and aquaculture,
17 hydrokinetics and others who are just looking to
18 have a little bit of space at that really busy
19 ocean, and that includes the location of
20 unexploded ordinances.

21 CHAIR SAADE: Okay. Larry and then
22 we'll have to take a break after that.

1 DR. MAYER: And this is just a
2 comment, and it doesn't really address the
3 ownership issue. But three other agencies not
4 represented here, DoD, DOE and EPA have a joint
5 office that's called SERDP/ESTCP, and they're
6 charged with all the efforts to at least find and
7 develop technologies to look at UxO.

8 I suspect they, I mean, they probably
9 have a database in terms of what's out there. It
10 would be nice to expand those three offices to
11 include you guys too.

12 CHAIR SAADE: Thanks Larry. I'll
13 just end it with one more comment, and then we
14 have the break to think about it. The problem is
15 insurance companies and responsibility and the
16 need to move it or explode it, and who gets to
17 make that decision. So besides the port
18 contractor and the client that's on their back.

19 So with that, let's take a break.
20 Thanks. Okay, and thank you all. That was
21 really great. I really appreciate it.

22 (Whereupon, the above-entitled matter

1 went off the record at 10:47 a.m. and resumed at
2 11:03 a.m.)

3 CHAIR SAADE: Okay everyone. We're
4 going to get restarted. I'm going to use the
5 microphone, because I hate having my back to
6 everyone there.

7 So this next session I'm going to turn
8 this -- turn it over to Sean Duffy, Sr., and also
9 the HSRP -- he was an HSRP member, and Glen
10 Boledovich, the NOS Policy Director. This next
11 section, their full bios are in the materials.
12 So I'll let them introduce themselves and the
13 topic on the Congressional perspective on NOAA
14 Hydrographic Services, and oh, and Sara Rothi-
15 Gonzalez. Your presence is really appreciated.
16 So you guys are on. Thanks.

17 MEMBER DUFFY: Okay. Good morning,
18 everyone. I'm going to kind of use some
19 Louisiana acronyms and I'm going to say today I'm
20 your gumbo. I'm an appetizer, I tend to be a
21 little mysterious. There's a bunch of ways to do
22 things. Something very few of you will know is

1 that there's another name for a roux. We're
2 you're making the roux, they can be referred to
3 as Cajun napalm.

4 And if you ever get it on you, you
5 will know why. Lots of chefs start out with
6 shallow pans and learn there's a reason mama did
7 it in a big, deep cast iron pot. So with that,
8 I'll try not to get burned and keep things
9 moving.

10 So as you heard Tom Smith talk about,
11 there's a lot of attention on the Mississippi
12 River, and my role is I'm an advocate for the
13 river. I spend a lot of time in Washington, and
14 I really feel -- I'm very passionate about what I
15 do. But it's coming here and meeting with
16 members of not only the Louisiana delegation, but
17 also the basin states as was pointed out earlier.

18 So the Mississippi River system
19 connects more miles of navigable waterway than
20 the rest of the world combined. A huge 41
21 percent of the nation drains through that river.
22 Some of the things going on right now that are

1 challenging us are related to high water.

2 Most of the basin right now is wetter
3 than it's been in 124 years. A lot of times we
4 hear things about how you have to schedule
5 dredging better. Well, I've never had anybody
6 explain to me how we can do that when we have an
7 event that hasn't happened in 124 years. There's
8 a lot of challenges to it.

9 As I say in a lot of places, what I do
10 is teamwork. I depend on our government
11 partners. I'll be careful to not go against the
12 decrees of being a member of the panel. But I
13 will say that full federal funding floats all
14 boats, and I spend a lot of time pressing for
15 additional funding to recover our channel, to
16 allow the government agencies that we depend on
17 to function.

18 I'll tell you I've also been through
19 probably more disaster recovery programs than
20 maybe anyone in the country, from Hurricane Ivan
21 was my first in my role, Hurricane Katrina,
22 Deepwater Horizon, having ships go aground,

1 having inadequate channel, and each one of those
2 efforts is led by National Weather Service
3 providing an update.

4 It really evolved out of Hurricane
5 Ivan where network communications were wiped out,
6 and we're very happy to get texts. At the time,
7 Nextel, walkie-talkie phones were -- if you
8 didn't have one, you needed one because that's
9 how we were able to communicate.

10 But setting up these conference call
11 systems where we have the Weather Service give
12 updates on what's current. Coast Guard, Corps
13 give these updates, and then the pilot groups and
14 the maritime representative is there to kind of
15 coordinate efforts to recover the channel, talk
16 about their most pressing issues.

17 As I look at it and right now, a lot
18 of funding and a lot of dredges are tied up in
19 the river. I was very happy when one of the
20 dredging contractors said Sean, what's your
21 Christmas list? And I was like hey, you know,
22 part of being an advocate is when somebody asks

1 you what you want, you have to be able to tell
2 them what you want.

3 So my response was, I want over double
4 the budget we get now. The President's budget
5 for the Mississippi River is just inadequate. We
6 see a lot of challenges on the system and
7 maintaining it. We're talking about the future,
8 and we have to get away from inadequate funding,
9 at least inadequate channels.

10 So when I first started coming to
11 Washington I like terms, and I feel like when I
12 meet with staff that I want to be memorable. I
13 want them to like -- I know their schedule is 15
14 minutes in, 15 minutes out and they go from
15 subject to subject.

16 So I want to leave them with
17 something. So the first term that I really could
18 be -- say that I coined or authored was related
19 to the harbor maintenance tax. I simply said,
20 taxation without channelization. So when I see
21 Congressman DeFazio over ten years later, he
22 still points at me and says you're that taxation

1 without channelization guy.

2 So I guess my point there is simply to
3 -- you have to make an impression, have to be
4 willing to come and meet with the members and
5 meet with staff, have your list. So my Christmas
6 list is \$200 million to maintain the Mississippi
7 River on October 1st every year. Dredge is
8 available when we need it.

9 I get called into meetings where other
10 areas aren't happy because their project or their
11 dredging was delayed because they had to send a
12 dredge to respond to a crisis on the Mississippi
13 River. Hopefully that means if we can solve my
14 problems, we can help deal with theirs. That's
15 how I look at it, because it is about teamwork
16 and depending on everyone.

17 With that, hopefully your gumbo was
18 not too spicy and didn't leave a bad taste in
19 your mouth, and that's my role here today. And
20 with that, I know Glenn has much more prepared
21 comments, and then I'll turn it over to him.

22 MR. BOLEDOVICH: Thank you, Sean.

1 (Applause.)

2 MR. BOLEDOVICH: Yes. I had to
3 prepare comments, because I had to be careful.

4 (Laughter.)

5 MR. BOLEDOVICH: To stay with -- try
6 to stay within my swim lane, which is always a
7 challenge for me, as many of you know. But I'd
8 like to take a few minutes to discuss some
9 potential opportunities in the new Congress. As
10 it relates to the new ocean policy and the blue
11 economy, and also in the context of NOAA's
12 navigation and observing program, which are of
13 course under the purview of this panel, to kind
14 of bring those things kind of together maybe.

15 The administration, including NOAA,
16 has not put forward a lot of legislation related
17 to the oceans. But the administration has
18 released an executive order. It's called the
19 Ocean Policy, and it's called the Ocean Policy to
20 Advance the Economic Security and Environmental
21 Interest of the United States.

22 Among other things, it recognizes

1 activities where NOAA plays an important role.
2 That includes maritime commerce, recreation and
3 tourism and fisheries. As a mechanism to advance
4 these interests, the Ocean Policy promotes
5 improved public access to marine data and
6 information. Well, that certainly should
7 resonate well with the work of this panel.

8 It also promotes interagency
9 coordination and engagement with industry, the
10 scientific community and others. That is
11 something you do at every meeting, including the
12 speakers this morning and the stakeholder panel
13 this afternoon. The executive order also
14 supports federal participation in regional ocean
15 partnerships.

16 In addition to the executive order and
17 Ocean Policy, you have heard Admiral Gallaudet
18 talk about NOAA's priorities for our oceans and
19 coasts in the context of the blue economy, which
20 includes maritime commerce, ocean resource
21 mapping, tourism and recreation and fishing and
22 seafood production.

1 At your orientation yesterday, I
2 discussed efforts by NOAA leadership to create a
3 link or a line of sight from the President's
4 Ocean Policy to NOAA's priorities in the blue
5 economy to the relevant underlying program, such
6 as the ones you oversee or that you support.
7 NOAA leadership has done a really good job of
8 that. I think it was pretty clear this morning
9 in the Admiral's talking points, so kudos to
10 Admiral Gallaudet and his team.

11 The programs of NOAA's National Ocean
12 Service are well-reflected in the executive order
13 and the blue economy. We have tremendous
14 expertise in these areas, in marine commerce,
15 ocean mapping, recreation and tourism. We're
16 also leaders in providing public access to marine
17 data, and have a long track record of forging
18 interagency coordination, engagement with science
19 and industry and regional ocean partnerships as
20 Nicole discussed some this morning already.

21 So I think there are maybe some areas
22 where Congress could act consistent with these

1 policies. One thing we probably don't need to
2 create is anything wholly new. In fact, I would
3 suggest that the ingredients already exist in the
4 law. What Congress might do is support better
5 integration of those ingredients, in other words,
6 kind of bake the whole cake out of the
7 authorities we already have on hand.

8 This is especially true in the area of
9 marine data and information, where so many
10 agencies play a role, as we saw this morning
11 already, and there are existing frameworks for
12 interagency coordination. One of those
13 frameworks is the Integrated Ocean Observing
14 System, the very people you met with in Juneau.

15 Like this panel, that group is
16 authorized under law. In this case, the
17 underlying authority is the Integrated Coastal
18 Ocean Observing System Act. In addition to an
19 advisory committee such as like this one, the law
20 creates an interagency coordinating body to
21 facilitate coordination across agencies with
22 ocean and coastal observing interests.

1 Another existing law is the Ocean and
2 Coastal Mapping Integration Act. It is basically
3 a parallel law to the one that related IOOS,
4 except it focuses on ocean and coastal geospatial
5 data, as opposed to observing data. While it
6 does not create an advisory committee, it does
7 create an interagency committee which is very
8 active.

9 And of course, there's the
10 Hydrographic Services Improvement Act, which
11 authorizes this committee and the programs under
12 your purview. In addition, the National Ocean
13 Service has an existing effort called the Digital
14 Coast, which includes an interagency effort that
15 Nicole discussed this morning, with BOEM and
16 NOAA's Office for Coastal Management, and it's
17 called out, it's actually called out, the Marine
18 Cadastre, which is a part of it is called out in
19 the President's executive order. Nicole talked
20 about the upcoming augmentation of that with the
21 Ocean Reports tool.

22 Legislation to codify the Digital

1 Coast was introduced in previous Congresses, and
2 I suspect will be introduced again in the 116th
3 Congress.

4 There are other existing authorities
5 and programs that might be considered, but these
6 four ingredients are a good example of programs
7 who might be better integrated to bake the cake
8 and advance the goals of the Ocean Policy and
9 blue economy to create a coordinated effort to
10 map and wire the coast.

11 So let me leave that at that. One
12 thing Congress might consider is an effort to
13 better coordinate existing ocean and coastal
14 observing and mapping authorities and programs.

15 So how does this relate to the work of
16 this panel? Well, pretty directly, I would say.
17 In fact, your forward-thinking efforts are
18 already demonstrating there's value to improved
19 coordination. Meeting jointly with IOOS, the
20 advisory committee in Juneau, is exactly the kind
21 of improved coordination and integration that the
22 Ocean Policy promotes.

1 So while it is true that under the
2 Hydrographic Services Improvement Act, your input
3 is focused on the three programs here under your
4 purview, the Office of Coast Survey, the Geodetic
5 Survey and CO-OPS, and their underlying important
6 navigation-related missions. You have already
7 looked beyond that. You are doing so again this
8 week by hosting a panel on sea level rise.

9 These efforts are consistent with the
10 orientation briefings you received yesterday from
11 the program directors, where we learned that
12 efforts to modernize national geospatial and
13 tidal datums, and delivery of improved
14 positioning, mapping and observing services
15 supports a wide range of needs for data and
16 information.

17 So let me conclude by first clarifying
18 that your job, I must just say this, is not to
19 advise Congress as the panel. You're authorized
20 in the statute to advise the NOAA Administrator
21 and the programs under your purview. But your
22 efforts also help inform and educate a broader

1 range of people about the value and public
2 benefit of these programs.

3 I had the honor of staffing Admiral
4 James Watkins when he was appointed by President
5 George W. Bush to chair the U.S. Commission on
6 Ocean Policy. Admiral Watkins had previously
7 served as the Chief of Naval Operations and the
8 Secretary of Energy. He was a great guy. He had
9 a deep and abiding love for the oceans.

10 He also had a saying that he repeated
11 often. People care about what they know about,
12 and they don't know enough about the oceans. I
13 would add that people also don't know enough
14 about the value of the ocean and coastal programs
15 that benefit them every day, including the
16 foundational programs and services under the
17 purview of this panel.

18 So in addition to your technical
19 advice, this is an area where the panel has been
20 and continues to be of great assistance. There
21 are issue papers and other recommendations that
22 are a matter of public record. We use them every

1 day. Your leadership and willingness to look at
2 the bigger picture also helps us to better bake
3 the cake. Thank you.

4 (Applause.)

5 MS. ROTH-GONZALEZ: Hi guys. I'm
6 Sara Gonzalez-Rothi. I'm a senior counsel on the
7 Senate Committee on Commerce, Science and
8 Transportation, and I work for the minority. And
9 I love that Glenn said your job isn't to advise
10 Congress, it's to advise NOAA, but you obviously
11 have other audiences, and that's why I'm here
12 today, because we do rely on your recommendations
13 really heavily.

14 Glenn mentioned you care about what
15 you know about, and people don't know enough
16 about the oceans. Well that's true about me too.
17 I've been working on ocean policy for a decade,
18 and I still learn new things every day. The way
19 to do that is to get outside of your wheelhouse
20 and learn from folks that have relevant
21 experience.

22 And I think the value of this

1 committee shows in the fact that Sean is here
2 today, and not in New Orleans saying, hey mister,
3 throw me something!

4 (Laughter.)

5 MS. ROTH-GONZALEZ: And it speaks to
6 the value of a story, right. So Sean comes from
7 a place where the water is integrally tied to the
8 economy. It's integrally tied to traditions and
9 to culture. But though the Mississippi River
10 Delta is unique for its own culture, it's not
11 unique in the fact that water-based communities
12 have spring up over the entire nation.

13 And that's why Congress wisely put
14 jurisdiction for oceans and atmosphere in the
15 jurisdiction of the Commerce, Science and
16 Transportation Committee, and not within another
17 committee, for example. It's because we know
18 that the oceans obviously undergird huge swaths
19 of our economy.

20 And so to Sean's point about
21 investment, I think we've got to be really
22 careful not to be penny wise and pound foolish,

1 and kudos to the administration for wanting to
2 quantify the blue economy in a more standardized
3 way. Because when you go to Congress and say, we
4 need 200 million every October 1st for MRT
5 program, when you're able to say, and this is
6 what that gets you in economic growth, it's a
7 more compelling story.

8 Mississippi River is not the only one,
9 though. Think about Puget Sound, for example.
10 Think about large aquatic ecosystems all over the
11 country. The good news about the new Congress is
12 that at least on my committee, we've got some
13 significant champions in the driver's seat that
14 work on ocean and coastal issues.

15 So Senator Wicker is our new chairman.
16 Senator Cantwell is our new ranking member.
17 Think about states that think about hydrographic
18 services? You can't pick two better ones that
19 Mississippi and Washington State, right. So
20 there are opportunities here to tell the story of
21 the blue economy and why it's important for
22 Congress to invest appropriately.

1 And I just want to build a little bit
2 on what Glenn said. The notion that Congress, we
3 come in and we like sometimes to do something new
4 and exciting, right. But I think there is a lot
5 of to-dos that have been kicking around for
6 several Congresses, in the vein of what Glenn
7 mentioned, reauthorization of the Integrated
8 Coastal and Ocean Observing System, and
9 authorization of the Digital Coast Act.

10 These are bills that we've passed
11 through the Senate multiple times, that in
12 previous years have gone over to the House and
13 not been acted on. The dynamics politically in
14 the House have fundamentally changed. There's a
15 new majority and query whether they may be more
16 interested in taking up these bills, to authorize
17 and hopefully better integrate programs that are
18 existing within NOAA now.

19 But I say that with an understandably
20 myopic view, because in my role on the committee,
21 my jurisdiction is specifically over NOAA issues.
22 But NOAA is not the only agency that has a dog in

1 this fight, right. But NOAA looks at air and
2 water, and the Corps looks at land.

3 And where air and water and the land
4 meet, that's where people live and work and play,
5 right? And so one of the challenges in better
6 coordinating existing authorities is that
7 Congress, the agencies are siloed. Congress
8 itself is siloed, and then within Congress our
9 silos look different.

10 So on the Senate side, NOAA is wholly
11 within the jurisdiction of one committee. On the
12 House side, NOAA's jurisdiction is split between
13 three different committees. So when Sean comes
14 in and talks to staffers in 15 minute intervals,
15 he's talking to one staffer who handles fish and
16 agriculture and health care and immigration, and
17 then he goes over to the Senate side and talks to
18 one who handles four different issues in addition
19 to hydro.

20 So I think we really value when folks
21 who work in an interdisciplinary way can come to
22 us and see the bigger picture and say this is how

1 you coordinate those things that you think are
2 disparate. You go find your colleagues on the
3 Armed Services Committee and you talk to them
4 about DoD needs for maritime transportation, and
5 you go and you talk to the Senate Environment and
6 Public Works Committee about hydrographic
7 services needed for environmental restoration.

8 And we really appreciate and value the
9 extent to which outside entities can tell us
10 where those relationships lie, because when we
11 work in a very narrow focus area it's hard for us
12 to see them. So, with that, I'll stop talking
13 and hopefully get some questions from you all.

14 CHAIR SAADE: Thank you all. That
15 was really great. We're going to open it up to
16 questions and Admiral, if you want to start.

17 RDML S. SMITH: Sure. Thank you very
18 much for this panel and Sean, thank you very much
19 for kicking it off colorfully, as usual. I
20 really appreciate it, and I don't want to -- I
21 don't want to hog the air time. I want to sort
22 of give the panel a chance to ask questions that

1 perhaps are outside of the types of questions
2 that I can ask as well. So why don't I reserve my
3 questions for the end, and let the panel go
4 first. Thank you.

5 CHAIR SAADE: Anyone have any
6 questions? Anuj.

7 MEMBER CHOPRA: Good morning again.
8 This is for Sara especially. Sara, we know
9 there's an energy boom happening on the export
10 side, net energy, which is increasing
11 exponentially. We were talking about two million
12 barrels plus a day last year. We're talking
13 about three million barrels a day this year.
14 We're talking about six million barrels a day
15 export in about two to three years' time.

16 The infrastructure is aging. How do
17 you envisage, or how does -- in your teams, as to
18 how we're going to address this issue on a
19 national scale?

20 MS. ROTH-GONZALEZ: It's a great
21 question. So when the President came into
22 office, obviously infrastructure was a

1 significant priority for him and one that folks
2 really thought that we could work across the
3 aisle and across the capitol to get a push across
4 the finish line. Well, what does an
5 infrastructure bill look like is a big question.

6 Is it what we call policy only, or is
7 it increased funding for new initiatives,
8 something more like the stimulus bill that we saw
9 previously, and that question remains to be seen.

10 So in 2016, the Senate leadership, Democratic
11 leadership pulled together what they called a
12 blueprint for an infrastructure proposal, and
13 asked for input from all of the relevant
14 authorizing committees, including the Senate
15 Commerce Committee.

16 That blueprint has not yet become
17 legislative text, but it's my understanding that
18 there is a desire to come to some more detail on
19 what that would look like. In the House, there's
20 a parallel effort. There's talk of just plussing
21 up existing accounts and having that be
22 considered an infrastructure bill.

1 The challenge that I think we run into
2 is again that if we haven't yet told the story of
3 what the Blue economy is quantifiably, even a
4 big, bold infrastructure proposal isn't going to
5 adequately reflect the needed investment. So I
6 think we're hopeful obviously that something like
7 that could get across the table, and that it will
8 include recognition of the needs for energy
9 infrastructure.

10 But we also -- I think in a broader
11 sense -- need to not be maintaining energy
12 infrastructure or water infrastructure crisis to
13 crisis or new infrastructure -- build a new
14 infrastructure bill. We need a more sustained
15 and systematic way to capitalize infrastructure,
16 including energy.

17 One thing I just want to flag is you
18 think about the energy export boom being United
19 States-specific. But it's true actually North
20 America-wide, right? Canada is considering
21 approving a new pipeline which would increase
22 tanker traffic between Canada and the United

1 States sevenfold, and do we have the spill
2 prevention and response capacity to handle that.

3 So there are lots of considerations
4 when it relates to infrastructure with new
5 markets, new exports.

6 CHAIR SAADE: Thank you. Any other
7 questions? We've got time for one more.

8 RDML S. SMITH: Okay. I'll ask mine
9 right here. Thank you. So I spend a certain
10 amount of my time coordinating hydrographic
11 services globally, as well as nationally, and we
12 often run up against the sort of silo of national
13 boundaries, where international shipping, you
14 know, flows freely across those boundaries, but
15 in some cases NOAA's authorities stop at the
16 boundary.

17 So for -- and it's very irregular
18 where those -- where those authorities are fluid
19 across boundaries. But hydrographic services are
20 -- tend to be siloed between domestic and
21 overseas. But I think particularly when we start
22 to think about resilience and global modeling,

1 those types of silos are constrained.

2 So I wanted to flag that in the
3 context of Glenn's -- of Glenn's call for more
4 fluidity and coordination, that that's sort of an
5 inadvertent silo in the way that we've structured
6 our agencies.

7 MS. ROTH-GONZALEZ: No, I think it's
8 a great point. I used to say --- so I worked on
9 these issues in a personal office before I came
10 to the Committee, and I used to say that fish,
11 water and money don't respect political
12 boundaries.

13 It's really true when you think of,
14 you know, the state to state boundary, national
15 to international boundaries, and I think your
16 point is absolutely correct in that for some
17 issues, those boundaries are less salient.

18 We would really appreciate -- and I
19 don't know if you're willing to take this on --
20 but kind of an itemized list of where those
21 inadvertent boundaries are, so that we can assist
22 in any way possible to break them down. I think

1 we struggle with the tension between you can't
2 legislate culture and we wind up inadvertently
3 legislating culture in a negative way, and
4 harming coordination and collaboration.

5 And so if some really smart folks
6 could sit around the table and say hey, I sit on
7 three federal advisory committees that are all
8 really looking at the same thing. Maybe you
9 could streamline by making them a macro-committee
10 instead. Those kinds -- that kind of feedback is
11 very helpful for us, because the intent of
12 Congress in creating what I call these legislated
13 coordination isn't to make you all sit in three
14 different rooms to say the same thing over and
15 over again to the same people.

16 It's really that we want to get at a
17 problem, and that's the solution we find. But if
18 you all are finding a better way to do it, I
19 think that would be welcome information for
20 Congress.

21 MS. LEBOEUF: I just want to add -- as
22 Sean will know -- a lagniappe to this

1 conversation. Sara, I don't know if you were
2 here during our opening remarks earlier this
3 morning. I am keen on the federal agencies
4 working more closely together to prepare for sea
5 level rise in coastal-dependent infrastructure.

6 We're not going to be able to leave
7 our coasts, but we can't stay like we are, and I
8 think that will break down our barriers for us if
9 we don't do it in advance of -- in advance of a
10 crisis situation. So I would love to talk to you
11 more about that.

12 MS. ROTH-GONZALEZ: Sounds great.
13 Please come and find me. I've love to just pick
14 all of your brains.

15 MEMBER DUFFY: I'd like to say one
16 thing on that, and it's kind of odd to be a
17 navigation person and talk about beneficial use
18 of dredge material in elevations. But --- I
19 often hear no, but I don't always accept it. So
20 I heard from the Corps several years ago that we
21 were not going to change the beneficial use
22 elevation in Louisiana.

1 We were able to. And as scientists
2 will say -- so four and a half feet -- mean low
3 Gulf became four and a half feet. So they kept
4 the number the same, NAVD 88, which was a three
5 and a half foot increase. I continue to believe
6 that that's not high enough, and it offers a lot
7 of money, and by being able to pump higher we can
8 pump closer and that there's plenty of areas that
9 need that restoration.

10 I don't know what elevation is in
11 other areas. I'm a Mississippi River guy every
12 day. But when I looked at a map with a bunch of
13 scientists and just said show me below Venice,
14 Louisiana where there's a point that's too high,
15 because I've spent my whole life around here and
16 I've never seen it.

17 Because of that, we were able to go
18 higher. So sometimes we have limits like that
19 that were established, that as we look at
20 subsidence and sea level rise, maybe it's time to
21 work on changing those to be higher and adjust to
22 the present circumstances.

1 CHAIR SAADE: Yeah. Go ahead, Rich.

2 MR. EDWING: Hi, Rich Edwing, Director
3 of CO-OPS. So as Congress considers an
4 infrastructure bill -- and of course an
5 infrastructure bill is appropriately going to
6 focus typically on physical infrastructure, you
7 know, dams, bridges, highways, those sorts of
8 things, you know. The information infrastructure
9 programs, we're hoping that, you know, they'll be
10 some attention I guess paid to us because
11 information, you know, datums, sea level rise,
12 all of that information is really needed to help
13 inform to the construction of that physical
14 infrastructure.

15 So I'm not sure if Congress is kind of
16 factoring that in, but if not I'd request you
17 think about it.

18 MS. ROTH-GONZALEZ: Yeah. I mean I
19 am right there with you. As a former colleague
20 of mine would say, you're preaching to the
21 preacher, not just preaching to the choir.

22 (Laughter.)

1 MS. ROTH-GONZALEZ: But I say that
2 because I think you have to have the people and
3 the platforms. So when people think of
4 infrastructure, they think of bricks and mortar,
5 and not people and platforms. And platforms are
6 broad right? It includes intelligence from which
7 to make better decisions about where you put the
8 bricks and mortar, and the people to make those
9 decisions and to find that information.

10 So as far as if I'm in any STAC level
11 conversations, I'll continue to make that pitch.
12 I hope you all will too. The challenges --
13 there's such a need on the gray infrastructure
14 side that the message is hard to push through.
15 But as I mentioned, I am hopeful that once we
16 really quantify the blue economy in a
17 standardized way, we'll be able to make that
18 pitch much more strongly.

19 The other piece I would say is, for
20 example, NOAA ships and aircraft. Those are
21 infrastructure. Satellites are infrastructure,
22 essential to figuring out how do we reconstruct

1 our roads, bridges and maritime transportation
2 system in such a way that it is resilient to the
3 great equalizer, sea level rise. So anyway, I
4 know we're over time. Sorry guys.

5 MEMBER DUFFY: I'd like to end by
6 saying thank you Sara and Glenn. I realize how I
7 was in the dangerous territory, but I say I live
8 in a minefield every day. So I appreciate you
9 and your comments are well pointed. Thank you
10 everyone.

11 CHAIR SAADE: Okay. So thank you
12 Sean and Glenn and Sara. We're going to take a
13 lunch break now. This is going to be closed to
14 the HSRP members, and it's going to take place in
15 this room. So we'll reconvene with the public
16 and everyone else at about one o'clock this
17 afternoon. Thanks.

18 (Whereupon, the above-entitled matter
19 went off the record at 11:36 a.m. and resumed at
20 12:59 p.m.)

21 CHAIR SAADE: Welcome back to the
22 HSRP meeting. Welcome Kim Hall, glad to see you.

1 MS. HALL: I am eight months pregnant
2 and she's coming two weeks early.

3 CHAIR SAADE: So no excitement. Okay.
4 Kim, could we take a minute to let you introduce
5 yourself?

6 MEMBER HALL: Sure. As I said, I am
7 eight months pregnant, so sitting's a little hard
8 for me. I might not look it, but I certainly
9 feel it, and I do apologize for being late. We
10 had a pre-term labor scare yesterday and had to
11 go back to the hospital. Everything's good,
12 she's fine.

13 But my name is Kim Hall. I am the
14 principal and founder of Brizo Maritime
15 Consulting, which is a woman-owned small business
16 that focuses on maritime security and nautical
17 operations, which includes hydro-related things,
18 mostly charting not the actual science and math
19 of figuring out how to chart.

20 But I appreciate you all being
21 flexible for me in my late attendance.

22 CHAIR SAADE: Okay. I'm going to be

1 turning this session over to Captain Jim Crocker
2 and Ed Kelly --- Ed's an HSRP member -- for the
3 stakeholder session, and their bios of course are
4 in all the materials. So take it away Captain
5 Crocker and Ed.

6 CAPT CROCKER: Let's see if I can get
7 close enough so it doesn't reverberate. Can you
8 hear me okay? All right, I've got to get closer.
9 All right. Good afternoon everybody. I'm
10 Captain Jim Crocker. I'm the chief of the
11 Navigation Service Division in the Office of
12 Coast Survey, and I'll be moderating the session
13 with Ed Kelly, as you know, who's an HSRP member
14 and the executive director for the Maritime
15 Associates for the Ports of New York and New
16 Jersey.

17 For this session, which we have titled
18 NOS Stakeholder Perspectives, Priorities and
19 Partnerships for the Future: the Mission of the
20 Navigation Services - Data, Products and
21 Services, we brought together a panel of experts
22 who broadly represents the maritime and

1 geospatial communities that use and rely on many
2 of the NOAA Navigation Services data, products
3 and services.

4 So the goal of this session really is
5 to provide the HSRP a deeper understanding of the
6 importance and relevance of the NOAA Navigation
7 Services portfolio to the maritime and geospatial
8 industry, how the industries are evolving to new
9 technologies and where new or improved data
10 products and services from the Navigation
11 Services will be able to enhance their
12 operations.

13 Each panel member is going to be
14 provided 15 minutes to inform the HSRP members
15 about the industry communities they represent,
16 discuss how their members use NOAA Navigation
17 Services data, products and services and -- in
18 their daily operations and provide
19 recommendations, you know, kind of where their
20 industry is going, future needs for Navigation
21 Services. We'll follow the presentations with
22 questions and discussion on that.

1 So to start us off, I've asked Ed
2 Kelly to do the first introduction for our
3 speaker.

4 MEMBER KELLY: Yeah, and I'd like to
5 say I have the pleasure of being co-chair here.
6 I didn't get involved with much of the heavy
7 lifting on this. The original HSRP panel co-
8 moderator was Captain Anne McIntyre, and as most
9 of you know, she blew her knee out skiing and is
10 not able to travel. She'll be not able to work
11 for a few months.

12 So I'm in the unenviable position of
13 coming in at the last minute when all the work is
14 done, and get to be up here sitting up at the
15 front with this distinguished panel.

16 Although all of the bios are in your
17 packets, for the benefit of the public and the
18 people sitting here and because of the diversity
19 of the organizations that they represent, we
20 decided to read brief bios, so that you really
21 understand the depth and breadth and the
22 perspectives that these people are coming from.

1 So our first speaker will be Captain
2 Jorge Viso. He's the president to the American
3 Pilots' Association. He was elected president to
4 the American Pilots' Association in 2016. He
5 served in numerous leadership positions including
6 vice president of APA's South Atlantic States,
7 vice president and president of the Florida State
8 Pilots Association, and chairman of the Tampa Bay
9 Pilots Association.

10 He chaired the APA's Navigation and
11 Technology Committee, where he facilitated
12 dialogue among professional maritime pilots on
13 portable pilot units and navigation technology
14 matters, and he worked with local and federal
15 officials for navigation policies and
16 infrastructure support.

17 Captain Viso graduated from the U.S.
18 Merchant Marine Academy at King's Point -- yay --
19 in 1985 with a degree in Marine Transportation
20 and Nautical Science and was commissioned as an
21 ensign in the U.S. Naval Reserve. He was a state
22 pilot in the Port of Tampa Bay, Florida from 1990

1 through 2016.

2 He holds U.S. Coast Guard credentials
3 as master of steam and motor vessels, and chief
4 mate of steam and motor vessels, and first class
5 pilot for Tampa Bay. Captain Viso served as vice
6 chairman of the Florida Board of Pilot
7 Commissioners, executive board member of the
8 Harbor Safety and Security Committee of Tampa
9 Bay, and instructor at the Maritime Institute of
10 Training and Graduate Studies, and the Maritime
11 Pilots Institute.

12 Captain Viso will be speaking today on
13 the critical information in a timely manner, and
14 as you can see from his bio he's eminently
15 qualified to speak on that regard, and represents
16 not only himself and his own local pilot
17 organizations, but through his role in the APA
18 he's able to speak to us from the wealth of
19 knowledge held by pilots all over the country.
20 Captain, the table is yours.

21 CAPT VISO: Thank you, Ed. I really
22 appreciate the intro. Good afternoon. Thank you

1 for the opportunity to speak before this panel,
2 and to describe how harbor pilots utilize NOAA
3 products and services. The APA is the national
4 association of the piloting profession.
5 Virtually all of the 1,200 state licensed pilots
6 working the 24 coastal states, as well as the
7 U.S. registered pilots in the Great Lakes, are
8 members of the APA.

9 These pilots handle well over 90
10 percent of the commercial, large vessel traffic
11 that uses the ports in the U.S. The role and
12 official responsibility is to protect the safety
13 of navigation and the marine environment in the
14 waters for which they are licensed. There we go.
15 There we go, there we go. Got it. We're good.

16 I wanted to go over and break this
17 down into three main parts that pilots are very
18 conversant with and use. Initially PORTS -- NOAA
19 PORTS -- the Physical Oceanographic Real-Time
20 System. I had the dumb luck, I guess, of being
21 there when PORTS was established in Tampa Bay.

22 Initially PORTS -- the birth of PORTS

1 was we had a discrepancy with tidal current
2 predictions in Tampa Bay after the construction
3 of the new Skyway Bridge. So we had gone to NOAA
4 at that time and said we seem to be having a
5 discrepancy on slack water times.

6 They deployed the array of instruments
7 to determine what the new prediction should be,
8 and out of that -- out of that equipment was born
9 what we know as PORTS now, and it was really the
10 first place that it got established. At least
11 that's the story I got when I was training and
12 I'm sticking to it.

13 The other area that's used quite
14 frequently is air gap. Air gap sensors are used
15 to measure the vertical distance between bridge
16 structures and the water level --- or the water
17 surface. Forecast services are another area.
18 Overall weather conditions and geographically
19 specific forecasts that may be critical to a
20 particular maneuver.

21 I'm going to start with PORTS. Let's
22 see. What I'm going to do with PORTS is sort of

1 cover --- I canvassed some of the pilot
2 associations across the United States, and I
3 wanted to give you real life examples of how
4 these services are being used, and I'll start
5 just with PORTS.

6 Speaking to Maryland specifically, the
7 wind sensor that is located on the northeast
8 tower of the Key Bridge is very critical in
9 determining the number and size of tugs that are
10 going to be required for docking. Baltimore
11 water level sensor is used to maximize draft
12 throughput in the port.

13 In the Chesapeake Bay, as you can
14 imagine being such a large mass of water moving
15 through that area there, it has a substantial
16 impact --- the weather does, the wind. So wind
17 events and weather events can affect the water
18 level all the way up in Baltimore Harbor. The
19 water level sensors are very critical to maximize
20 cargo throughput.

21 Wind and current sensors along the
22 entire transit of Chesapeake Bay enhance the

1 pilot's situational awareness. Deployment of
2 visibility sensors has been appreciated, but
3 they've been less reliable than the other sensors
4 that have been deployed. PORTS is used heavily
5 on mobile apps, on pilots using it on their
6 phones. But they've also been able to integrate
7 PORTS via AIS delivery onto their portable pilot
8 units. That's been very beneficial.

9 Charleston -- the Port of Charleston,
10 which is handling some very large container ships
11 at this point, employs three main sensors right
12 now. One tide level gauge and two air gap
13 sensors for the two bridges there. Tide level is
14 critical to cargo tonnage throughput, especially
15 when you're handling 14,000 TEU container ships.

16 Every foot of cargo of draft equals
17 money, you know, and that's both in cargo and in
18 crane time. That's critical to them.

19 Jacksonville, in Florida, the pilots avail
20 themselves of all the sensors available, but
21 funding has dried up in that port and they're
22 essentially down to wind and air gap sensors.

1 Moving on to the West Coast, San
2 Francisco. Current predictions there versus
3 actual PORTS data helps them determine if the ebb
4 is running late due to high runoff from the
5 rivers, and that is very critical to some
6 maneuvers. Visibility sensors determine
7 visibility for passage through a federal
8 regulated navigation area, or the local critical
9 management area which has been determined by the
10 VTS here and the pilots.

11 There is access to information through
12 the platform that they use for their PPU's. So
13 they have access to the internet with their
14 portable pilot units to get that information.
15 And finally, I'll mention Tampa. We're going to
16 -- for me, it kind of all started there.

17 We use tide for maximizing bulk cargo
18 movements through there. Wind sensors are
19 basically a wide array that lets us look ahead
20 and see what frontal movements are coming through
21 the bay, since we have such a spread of sensors,
22 and then we can adjust our passages accordingly.

1 Several movements in Tampa Bay are
2 very current critical, and PORTS has been
3 phenomenal for that. Tampa also served as a test
4 bed for AIS transmission of PORTS information.
5 By that I mean the information that's derived
6 from the PORTS sensors, besides being on the
7 internet, can be broadcast through the Coast
8 Guard Automatic Identification System that they
9 have control of, and can be broadcast to anybody
10 who's got the equipment to receive it.

11 All the portable pilot units that are
12 on the market right now have that capability to
13 receive that information if it's being
14 transmitted locally.

15 This slide here shows you what that
16 information looks like in an internet format,
17 where there -- this particular one's on my phone.
18 But right there you can see that you've got tide
19 levels, you've got currents, wind and visibility.

20 This slide here next depicts what that
21 looks like on a PPU. When we first had the
22 information transmitted to the portable pilot

1 units, we asked NOAA at the time and the other
2 people that were involved --- Eleon Technology
3 was involved. We just wanted it in text
4 information, in this text format, just to make
5 sure that it was going to work, because we were a
6 little doubtful whether it was going to actually
7 be able to push through all the time.

8 So this is what it originally looked
9 like, but now many of the softwares that pilots
10 are using will actually give you a graphic
11 depiction of some of this information. But right
12 there you can see not all the sensors are lit off
13 all the time.

14 But this information that you see here
15 on this slide came through the air, through an
16 AIS receiver on the ship, and then sent to the
17 pilot plug and the pilot was able to gain access
18 on his computer right there, and as you know with
19 PORTS, you're talking about every six minutes
20 being an update. So very critical and very
21 useful for us.

22 Here's another representation of what

1 you might find on the internet if you go look,
2 and here's a consolidation of actual versus
3 predicted on tide levels, currents, wind speeds,
4 directions and salinity and temperature.

5 The next thing I wanted to cover was
6 air gap sensors, and here is the Francis Scott
7 Key Bridge in Baltimore, and you can actually
8 graphically see what's going on with the air gap
9 as it opens up some more and closes down. So
10 this is critical obviously.

11 As ships are getting bigger, the
12 tolerance on both ends, under keel clearance on
13 one end with the ships getting deeper, but as
14 they're getting bigger, we're restricted by
15 overhead structures, power lines and bridge
16 structures. This is so critical. As I'm sure
17 you've seen in the news, the Bayonne Bridge, the
18 vertical clearance there was changed from 151
19 feet to 215 feet by the reconfiguration of the
20 bridge and removing that lower roadbed.

21 That's huge. That has enabled 14,000
22 TEU container ships go up into Jersey through

1 that area. Otherwise, they'd have to put the
2 ship somewhere else or maybe it would go
3 somewhere else or trade somewhere else. So air
4 gap becomes critical as ships increase in size.

5 As an example in Tampa, when the new
6 Skyway Bridge was built, completed in 1986, the
7 vertical clearance there is 180 feet, and nobody
8 ever thought that that was going to be an issue.
9 Right now, some of the cruise ships and container
10 ships are in the 200 foot air draft range.

11 So right now Tampa is limited and
12 nobody ever thought that would be possible at the
13 time of the construction. We can't handle ships
14 that have an air draft of more than 180 feet.
15 Well that excludes Tampa from some of the major
16 cruise ship business and from extremely ultra-
17 large container ships.

18 This is how close it gets. This is a
19 Cosco development going under the Ravenel Bridge
20 in Charleston last year that I rode with the
21 pilots. That's the underside of the bridge, and
22 I'm taking that picture right from the bridge

1 wing, so you're right there. So I think you can
2 see why air gap becomes critical.

3 The last product that's used heavily
4 by pilots I want to talk about were forecasts,
5 and two in particular. Graphical forecasts, what
6 you see here, are useful for regional weather
7 trends. We can easily see cold fronts --- so for
8 wind shifts -- and also we can see fog
9 development starting here.

10 These particular forecasts are very
11 accurate for the most part, as accurate as they
12 can be in a forecast, and very useful to us.
13 Especially I can speak from experience in Tampa,
14 these are very good indicators of what visibility
15 was going to look like in the next 12-24 hours
16 and we used them pretty heavily.

17 The other thing that we use is the
18 Marine Channel forecasts, which are very
19 localized, specific forecasts. They're useful
20 for weather-critical choke points and weather
21 sensitive maneuvers. An example, we have a very
22 narrow channel that we transit in Tampa, the Big

1 Bend Channel that runs east-west.

2 It's only 200 feet wide. We're taking
3 ships that are a little over 106 foot wide
4 through that channel. There's not a lot of room
5 to put leeway on the ship, because there's no
6 water outside the channel. We would have to shut
7 that channel down for certain wind speeds, and
8 we've been able to open up that window with the
9 localized forecast.

10 We can get a prediction. We can get
11 it down to which direction the wind is coming
12 from. There is some variability that we can
13 handle wind on the bow or on the stern, not so
14 much on the beam of the ship. But these
15 localized forecasts are very effective for that.

16 We can project out ahead and tell the
17 agent it's looking good for your inbound transit
18 tomorrow at six in the morning. We're going to
19 set up to get it done. Of course that can
20 change, but it gives us some foresight and some
21 planning ability.

22 The last thing I want to talk about

1 was delivery. The easy access, it's trending
2 that way what we can get on the web, and we ask
3 that you continue to make it. Sometimes the NOAA
4 sites are a bit scattered, and I know that you've
5 made an effort to consolidate those so we can
6 find things a little bit easier. But things tend
7 to be scattered a bit.

8 We'd love to see more AIS delivery of
9 information. That's very useful to us. It also
10 surmounts the problem of cell phone coverage. So
11 AIS delivery of information, you know, takes care
12 of gaps in cell phones. Continued cooperation
13 between NOAA and other agencies like the Army
14 Corps of Engineers, that has been very effective
15 in some areas and I'll just show you a couple of
16 slides here to finish up. I'm getting prodded
17 here.

18 We'd like to see expansion of
19 bathymetric ENC surveys and here's an example.
20 In Long Beach, where bathymetric ENCs are being
21 provided at a very high refresh rate as far as
22 what's available, what you see here is what the

1 pilot sees on the PPU, where the no-go areas are
2 clearly marked in the darker blue and the red
3 outline. This shows a pilot graphically exactly
4 where he can and can't go, and it's been very
5 effective.

6 So we would like to see more of that.
7 That's very helpful for us and AIS delivery would
8 be wonderful. Thank you.

9 MEMBER KELLY: Thank you.

10 CAPT CROCKER: Okay. So our next
11 speaker is Dr. Qassim Abdullah. He's a Chief
12 Scientist and Senior Associate for Geospatial
13 Services of Woolpert, Incorporated. Dr. Abdullah
14 obtained his doctorate and master's degree in
15 photogrammetry from the Civil Engineering
16 Department of the University of Washington in
17 Seattle.

18 He's an accomplished scientist with
19 more than 40 years of combined industrial
20 research and academic experience in analytical
21 photogrammetry, digital remote sensing, and civil
22 and survey engineering. Dr. Abdullah is also a

1 certified photogrammetrist by the American
2 Society for Photogrammetry and Remote Sensing,
3 and a licensed professional surveyor and mapper
4 with the states of Florida, Oregon, Virginia and
5 South Carolina.

6 He's also a certified thermographer by
7 the FLIR -- F-L-I-R -- Infrared Training Center
8 and a certified geospatial intelligence
9 professional in remote sensing and imagery
10 analysis by the United States Geospatial
11 Intelligence Foundation.

12 As chief scientist for Woolpert
13 Geospatial Services and a member of the Woolpert
14 Labs team, his current responsibilities include
15 designing and managing strategic programs to
16 develop and implement new remote sensing
17 technologies focused on meeting the evolving
18 needs of geospatial users.

19 His latest accomplishments include
20 evaluating and introducing the Geiger and single
21 photon LIDAR to geospatial industry, and leading
22 Woolpert Research activities in the field of

1 unmanned aerial systems, in sensor calibration
2 and workflow development.

3 Dr. Abdullah also serves as an adjunct
4 professor at the University of Maryland in
5 Baltimore County and at Penn State, teaching
6 graduate courses in UAS photogrammetry and remote
7 sensing. So, very pleased to have you with us
8 today, Dr. Abdullah.

9 DR. ABDULLAH: Thank you very much,
10 Jim, and thank you for the opportunity for me to
11 speak and Admiral Smith, thank you for the
12 invitation. We really appreciate it here. So my
13 representation is to kind of speak on behalf of,
14 unofficially, I mean on the geospatial data
15 provider. Woolpert we are data provider
16 engineering.

17 But I'm very heavily involved with the
18 ASPRS, American Society of Photogrammetry and
19 Remote Sensing, maps, members, and Penn State and
20 the University of Maryland-Baltimore County,
21 where I teach here. I would like just to give a
22 special thanks to our industry partners, my

1 colleagues, Jon Dasler and Jason Creech from Dave
2 Evans, and Nathan Wardwell from JOA Surveys and
3 Dave Kuxhausen from Woolpert. They really helped
4 me a lot with the presentation slide.

5 So all I can say now -- I was talking
6 to Jim earlier. Technology-wise in our industry,
7 we are in a golden era definitely by all means.
8 I mean nothing we could dream better where we are
9 now. So we reach new highs in data acquisition
10 and capability, and here what you really see,
11 this is digital camera. We move to digital
12 camera from film about 19 years ago.

13 But you see the quality of the digital
14 imagery is just amazing. I mean the depth,
15 radiometric depth of it and if we go to LIDAR --
16 I mean I assume most of you are familiar with the
17 LIDAR, which is laser profiler. We fly it on
18 aircraft, and thus could be with our bathy LIDAR,
19 what you see here. I mean very important to this
20 community definitely.

21 Or aerial LIDAR. Aerial LIDAR, we get
22 -- we fly it now latest technology. We fly it

1 from 26,000 feet above the ground to get ten
2 centimeter accuracy, absolute accuracy on the
3 ground. So it is really amazing, mind-boggling
4 technology definitely.

5 Or mobile LIDAR. This is the
6 workhorse for the road infrastructure mapping for
7 now for transportation and DOTs. Nothing can
8 compare documenting the field as is. You drive
9 it once, you use it many times and it shows what
10 you see on the left side of the slide.

11 The wire, this is not an image. This
12 is just a 3D model for what's on the road,
13 whether pool, or wires, whether manhole, whether
14 road sit drives, everything you can see. So
15 you're really tracing the scene, but in 3D. With
16 accuracy, we're talking about less than two
17 centimeter accuracy, positional accuracy.

18 Stationary LIDAR, definitely. I mean
19 instead of airs, can't live without the LIDAR now
20 and its capability, and what you see here,
21 bridges and things being scanned by this LIDAR.
22 Or the latest now, the carry-on LIDAR, what you

1 see, you know. That's the best way to document
2 the scene. A lot of, as is planned now
3 engineering, the one done decades ago, they are
4 wrong because nobody map it right away where that
5 fiber optics or pipes is buried.

6 They buried it and somebody come later
7 to document it with hand-held board. But now
8 this is the way to do it. I mean somebody
9 carrying it on their back, they walk and it give
10 you accuracy, to the centimeter accuracy, where
11 that pipe was buried for example.

12 And now in the last few years, with
13 the UAV that runs now, it's getting very active
14 now, there are so many offering of LIDAR on board
15 of drones. So really LIDAR give us everything we
16 need, by all means. I mean there's no doubt
17 about it.

18 Whether sea floor mapping or
19 topographic map. What you see here, this is our
20 latest project with the latest single photon
21 LIDAR. We flew the big island in Hawaii. So
22 what you see is a three-dimensional, very clean,

1 very dense. You talk about 20-30 point per
2 square meter to define the surface. So density,
3 we never see it. We couldn't afford with our
4 regular land surveying or photogrammetric mapping
5 serial compilation.

6 We cannot afford to map the terrain
7 the way LIDAR has given us and what you see here.
8 For engineering design, it's beautiful. Nothing
9 can match the as-is documentation of engineering
10 project like LIDAR, because you could go with the
11 field surveying and you can get a few points on
12 the arch.

13 But you cannot map the exact and
14 compare it to the design. That's the advantage
15 now. You have accurate map to compare it to the
16 design, and you know whether the contractor met
17 the specs or not. So what brought us to this
18 golden era which I describe now?

19 There are so many factors contributing
20 to success by all means. First of it is advances
21 of technology. I mean the sensor technology is
22 like our smartphones. It's going so fast. It's

1 amazing definitely. You can't even follow it
2 anymore. The second thing geo-location
3 capability, like GPS, CORS station, OPUS services
4 by NGS. And then the IMU, because all these
5 technologies, the laser technology I spoke about,
6 LIDAR we can -- we wouldn't be able to do LIDAR
7 without GPS, you know, period.

8 I mean LIDAR wouldn't exist if it
9 wasn't for the GPS. But GPS also by itself is
10 not enough without the ground support of what NGS
11 is doing, you know, with our OPUS processing,
12 whether the monuments -- you know, the NGS
13 monuments because we need the datum. We need to
14 connect to a datum.

15 And then we have the ground surveying
16 technique and survey monuments. That's all
17 contribute to our success, and then OPUS and --
18 processing software. All that mix made us where
19 we are now.

20 So I pointed to the OPUS and CORS
21 station definitely. This is the excellent work
22 of NOAA and NGS specifically, and so as the

1 ground surveying technique and survey. We are
2 very capable now to survey to the millimeter and
3 centimeter accuracy, and we'll talk a little bit
4 about the exciting coming, the new datum of 2022.

5 So among the useful NOAA services
6 which we cannot live without definitely is the
7 CORS and OPUS project. I'm just listing a few.
8 Horizontal time-dependent positioning, the HTDP.
9 Access to aeronautical data, NGS Coordinate
10 Conversion and Transformation tool, NCAT.
11 VERTCON, weather forecasting for mission
12 planning. Snow coverage maps, tidal records,
13 historical weather, vertical -- the VDatum, the
14 vertical datum transformation and National
15 Reference System Modernization.

16 We are anxiously waiting for that.
17 NGS did excellent job preparing the industry.
18 They started five years ago for 2022 release,
19 which was great preparation for the industry.
20 That's what we really use on daily basis for our
21 geospatial, whether land surveying, whether
22 aerial mapping, whether bathy LIDAR and so on.

1 So some of the service acknowledgment
2 and suggestions for improvement, because we
3 requested to come up with some suggestions for
4 improvement. I'm just going to list a few again
5 here. VDatum is a great program, heavily used by
6 geospatial industry. More funding to support
7 more frequent updates. We hope that can happen.
8 Extend coverage for shoreward, like 500 meters to
9 account for changing shoreline, eliminate
10 existing coverage gaps and convert airborne and
11 vessel LIDAR shoreline coverage.

12 Incorporate river gradient datum such
13 as Mississippi Low Water Reference Plane and
14 Columbia River datum. Geospatial community
15 concern over new geospatial data datum epochs and
16 TD, impact on the VDatum. Adequate funding, we
17 hope, for simultaneous update of all models on
18 rollout, and the next point really relates to it.

19 There is a little bit concern about
20 whether we are going to be ready to roll out the
21 NTDE with the 2020, the new datum, the reference
22 frame rollout. We just mention it, just probably

1 there is more going on than we know, but we just
2 putting it before you so somebody will take note
3 on it.

4 Extend coverage to Alaska, especially
5 major ports and coastal community. Current NTDE
6 is 1983 to 2001. We'll be updating to a new 19
7 years period soon. Some tidal datum reference
8 modified five years epochs. Perform more robust
9 GNSS ties at temporary tide station. Current RWS
10 single for our observation of single tidal
11 benchmark. Two simultaneous observation of two
12 marks with improved ties between tidal datum and
13 global reference frame.

14 Tidal datum and ellipsoid height
15 information for many tidal benchmark used in
16 development of VDatum grids, reference different
17 epochs. The reference epochs for the current
18 NSRS is 2011, as we know, and the center for the
19 current NTD is 1992. Combining tidal datum and
20 ellipsoidal height referencing different epochs
21 and to reduce errors, especially in a region with
22 significant vertical land motion.

1 The coast is a great problem for the
2 National Geodetic Surveys, and heavily used by
3 the geospatial industry. Enhance funding to
4 support and expand. This is very important.
5 This is vital to our industry definitely.
6 Consider adding CORS station co-located with CO-
7 OPS tidal station, where practical extend CORS
8 network to offshore platform island to support
9 ellipsoid reference surveying.

10 For a new installation, select coastal
11 site suitable for both positioning and measuring
12 water level via GNSS reflector metric. Precision
13 navigation. Kudos to the Office of Coast
14 Survey's visionary program. This is a great
15 thing. I get a lot of praise for it for
16 improving the safety of maritime commerce in key
17 harbors like Long Beach, lower Mississippi River
18 and New York.

19 Kudos also to CO-OPS for port support
20 of dynamic under keel clearance need to be expand
21 and obtain federal funding and fast for industry
22 partner ships similar to CORS. Visionary use of

1 mobile mapping system. That was a great move
2 definitely, and hopefully this experiment will --
3 and experience with grow into more places.

4 That's vessel LIDAR, we put it on
5 LIDAR, and imagery for harbor asset management
6 and charting, bridge and overhead wire clearance,
7 precision positioning of future -- the LIDAR is
8 the best way to trace the scene, I mean in
9 surveying and mapping.

10 So using, using LIDAR for this, for
11 bridges, clearance and wire is a great move
12 definitely. Obtaining fund to expand the
13 precision navigation projects to all deep draft
14 ports to support increasing demand of maritime
15 commerce on ports, harbors and approaches.
16 Improve water level forecasts and near shore
17 bathy around Arctic community.

18 National Water Level Observation
19 Network, great program by all means by NOAA
20 Center for Operational Oceanographic Projects and
21 Services -- CO-OPS -- and widely used by the
22 geospatial industry. Enhance funding to support

1 and expand published relationship of NAVD 88 on
2 tidal datum page for all published station.

3 Extend offshore observation
4 biodiversity platform, biomound gauges and
5 others. Consider expanding network through GNSS
6 reflectometry, especially in challenging coastal
7 environments such as Alaska. Improve GNSS ties
8 at NWLON station by leveling ties between the
9 NWLON station and nearby CORS, and through more
10 robust GNSS observation.

11 Consider using modified five years
12 epochs for all ties station to improve more
13 consistency between tidal datum and ensure
14 currency of tidal datum. That's all I have. I
15 mean, I have -- still have two minutes for
16 discussion.

17 MEMBER KELLY: You know we're going to
18 leave lots of time for questions and answers.
19 Okay, thank you. Our next speaker is Mr. Chris
20 Edmonston. He's the President of BoatUS
21 Foundation for Boating Safety and Clean Water.
22 Chris is the Vice President for Government

1 Affairs of the Boat Owners Association of the
2 United States, better known as BoatUS and
3 President of the BoatUS Foundation.

4 He's been with the organization for
5 more than 20 years, and in the marine industry
6 for more than 30 years. He works with a wide
7 range of external partner organizations and
8 companies to promote safe and clean boating, as
9 well as boating in general on behalf of the
10 organization's over half a million members.

11 Chris has served on numerous boards
12 and councils, including recently serving as the
13 Chairman of the National Safe Boating Council.
14 He is a graduate of the Virginia Military
15 Institution. Mr. Edmonston please.

16 MR. EDMONSTON: Thank you. I've got
17 a great job. I am just a boat guy and I get to
18 play around with boats all the time. I am very
19 happy. Glad to be here to talk to you about
20 boating. What a great topic for me.

21 A little bit about BoatUS. We are an
22 organization made up of recreational boaters. We

1 actually have over 600,000 members now and there
2 are 600,000 dues-paying members. We have over
3 500 employees across the country and have offices
4 in California, Florida, Virginia and Maryland.
5 We are the largest boat-only insurance company in
6 the country and we have the largest magazine.
7 There are some copies outside if you're
8 interested in having one.

9 We're also the largest provider of on-
10 water and online boating education for
11 recreational boaters. I've been teaching boaters
12 online for over two decades, and we have over one
13 and a half million people have taken our boating
14 safety course.

15 Our second most popular course is
16 navigation. We teach people some basic
17 navigation things online. I think it would be
18 safe to say that our start came from being an
19 advocacy organization, government affairs. Our
20 founder had a little beef with the Coast Guard in
21 the mid-60's and that started a long and
22 contentious relationship with federal and state

1 agencies, which goes on today. Yes.

2 (Laughter.)

3 MR. EDMONSTON: We do a lot of
4 consumer affairs advocacy for our members and
5 non-members alike. We intercede with boaters on
6 their behalf with manufacturers, state and
7 federal agencies and so on and so forth. Let me
8 see here. And we use NOAA's resources quite a
9 bit. I have a little screenshot there of our
10 BoatUS app, which is something that I recommend
11 all of you download right now if you don't
12 already have it, and we highlight weather data,
13 buoy data and tides.

14 Buoy data and tide data is actually
15 from you directly, and we are in the process of
16 switching over to NOAA Weather this year. It's
17 taken us a bit because we had a little bit of
18 difficulty of getting your data. But you guys
19 have done a wonderful job of updating your APIs,
20 your interface outlets and we are now able to
21 successfully use your product on our app.

22 This is a very popular boating app.

1 We get about 10,000 new users a year. We just
2 launched this version last year, and we also use
3 your services for our towing dispatch. We have
4 the largest fleet of on-water dispatch in the
5 country, and if you look at our dispatch center,
6 they all have very sophisticated mapping
7 programs.

8 If you happen to hit that little
9 button at the top there, that you can see -- call
10 for a tow -- and it transmits the data and it
11 relates graphically on the mapping program to
12 show where the boaters are. Not underneath the
13 cloud by the bridge, but actually the lat and
14 long of the boat.

15 What products or services do we wish
16 we had? Be great if we had an API library for
17 all your products. You do have some great APIs
18 for your products, but they're here, they're
19 there, they're kind of hard to keep track of
20 where they might be. If there was one central
21 spot for them, that would be wonderful.

22 My programmers helped me write this

1 one. Buoy data as an API rather than a text
2 file. Right now, we have to import your buoy
3 data as a file and then convert it into an API
4 for us to use on our system. Love the nowCOAST
5 website. I wish that was in an app all by
6 itself. I've got several NOAA apps on my phone
7 right now, and I think nowCOAST would be a decent
8 one to turn into an app also.

9 You guys also have river stage data
10 and lake water levels, but it's kind of hard to
11 get the data from your websites. You can get
12 your websites referred to the locations and the
13 stations, but not the data itself. It would be
14 great if there was a way to get that data as a --
15 or through an API from your site.

16 I'll also say that we do have -- we
17 probably have 150,000 members in Florida and we
18 hear quite a bit about how they want better
19 mapping for the Bahamas. Lots of our boaters go
20 to the Bahamas, and our towers also go over to
21 the Bahamas and they have a -- they struggle with
22 getting good charts. It would be great if we

1 could overlap a little bit with what they use or
2 if we could send some boats over there to do some
3 basic charting in several of the islands.

4 As I already mentioned, bridge heights
5 and air draft of bridges would be a good thing.
6 We get lots and lots of calls of people saying
7 they're going to this location or that location,
8 and they don't know if their sailboat will go
9 underneath the bridge. What is the air draft of
10 it? And probably a lot more bridges than what
11 the commercial guys would need.

12 Working with your sister agency, the
13 Coast Guard, we have some concerns about their
14 push for synthetic and e-aids to navigation and
15 how they're going to be portrayed on charts,
16 either on paper charts or electronic charts. We
17 too would like some more information to be pushed
18 through AIS.

19 We think that's a very valid system,
20 robust system that would help bridge a gap
21 between cell phone and other services, satellite
22 services and it's under-used.

1 We also see a lot of companies
2 promoting their new fish finders, depth sounders,
3 and their bathymetric data capabilities and how I
4 as a boater can take my chart plotter out there
5 and essentially map the bottom contours of where
6 I might happen to be and upload it into a chart.

7 That's great. It's not so great if I
8 have never been to a particular area. It would
9 be wonderful if we could get some updated
10 bathymetric data in the government charts.

11 Corporately, we use -- I would like to
12 see us get to the point where can use your
13 geodetic data, your emergency response imaging
14 and your weather data to help us look at
15 particular harbors, locations where marinas might
16 happen to be or boaters might like to congregate,
17 to see if that's a safe place for them to be in a
18 hurricane area.

19 It would be great if we could let's
20 say look at Galveston and say you don't want to
21 be in that marina, or if you're in that marina,
22 it's going to cost you more for insurance because

1 that's not as safe as this place across the bay.
2 That's something that we would like to be able to
3 do down the road.

4 For me personally, I am a boat guy.
5 I live on the Chesapeake Bay, and I use your NOAA
6 Chesapeake Bay buoy system app all the time,
7 except for right now because my local buoys are
8 not live. So it would be great if you could turn
9 those back on thank you.

10 (Laughter.)

11 MR. EDMONSTON: What I use those for
12 is dissolved oxygen. I know that if the
13 dissolved oxygen is higher, the fish are more
14 likely to be active and hungry. Salinity, sea
15 nettle probability, water temperature, wind
16 speed, things like that. I know that if I am out
17 and teach people how to drive a boat, I want to
18 be able to tell that the wind speeds are going to
19 be such that I can be in a particular area or
20 not. It's hard to teach somebody how to dock a
21 boat if it's blowing 15 to 20.

22 That is really, I think, all I have.

1 I do, would like to say that the Office of Coast
2 Survey has been a huge help to us over the last
3 few years in particular. I've seen a great
4 increase in interest and care for the
5 recreational boaters, and the products you're
6 putting out are vastly improved over what we had
7 traditionally seen. So thank you very much.
8 Thank you.

9 MEMBER KELLY: Thank you, Chris.

10 CAPT CROCKER: Thank you, Chris. Next
11 up will be Mr. Will Fediw, president, Industry
12 and Government Affairs for Virginia Maritime
13 Association. Will Fediw is part of the
14 leadership team of the Virginia Maritime
15 Association. He plays a key role to promote,
16 protect and encourage domestic and international
17 trade through Virginia's dynamic ports.

18 He's charged with developing and
19 implementing strategies that improve the maritime
20 business climate for VMA member companies, and
21 keeps VMA stakeholders advised of industry-
22 related, regulatory and legislative developments.

1 He is a recognized industry advocate, insuring
2 open and timely representation and has been
3 involved in maritime operations, stakeholder
4 relations and industry advocacy, working closely
5 with federal, state and local governments.

6 He helps orchestrate maritime
7 infrastructure permitting, maritime
8 transportation initiatives and maritime economic
9 development solutions in multiple U.S. ports.

10 He's previously served as a commissioned officer
11 in the United States Coast Guard, working in
12 maritime safety and security, concentrating on
13 regulatory compliance.

14 Will specialized in petroleum and
15 chemical facilities and vessels, while also
16 overseeing waterways, management activities such
17 as waterway suitability, assessment and the
18 establishment of regulated navigation areas.

19 He's a graduate of Old Dominion University, with
20 a degree in maritime supply chain management and
21 holds a master's of Business Administration from
22 the University of North Carolina's Kenan-Flagler

1 Business School. Thank you. Will?

2 MR. FEDIW: Thank you. Well good
3 afternoon everyone. My name is Will Fediw. I'm
4 happy to be here and excited just share on this
5 panel as far as the commercial considerations
6 from the industry, about how important several of
7 these hydrographic services are to commerce, and
8 how to drive and increase economic development
9 not only in our state but also nationwide.

10 So I'm the vice president of Industry
11 and Government Affairs for the VMA. We serve
12 effectively as the voice of port industries, as
13 you will, in the Commonwealth, promoting,
14 protecting and encouraging commerce through
15 Virginia's ports since 1920.

16 What's very exciting is we're coming
17 up on our 100 year anniversary, representing over
18 450 membership companies throughout the
19 Commonwealth, representing a full spectrum of
20 maritime logistics and related companies. So
21 when you think of your typical steamship lines,
22 your towing and barge operators as well as your

1 terminal operators, but also rail, over the road
2 trucking, logistics and distribution centers and
3 manufacturers across the Commonwealth.

4 In 2014, William and Mary put out an
5 economic impact study of Virginia's ports,
6 showing that the port-related industry brought in
7 \$88.4 billion in spending, 27.4 billion in wages,
8 and almost 531,000 port-related jobs. That's a
9 little over ten percent of our state GDP, with
10 2.7 billion in state and local taxes generated,
11 and almost 80 million tons of cargo moved.

12 Since 2016, we've had \$3.7 billion
13 invested, with close to 15,000 jobs created and
14 almost 10 million square feet developed for port
15 and logistics infrastructure. Also for both 2017
16 and 2018, we had over 2,500 vessels calling on
17 our port, and we're the second largest port on
18 the east coast as in tonnage, as well as third
19 largest east coast port in terms of volume.

20 Now what that really means in the
21 context of this discussion is that Virginia's
22 maritime industry relies on the accurate real-

1 time data and services, the hydrographic services
2 that NOAA provides. Primarily, we look at PORTS.
3 That's something that our partners at the
4 Virginia Pilot Association use all the time.

5 But it's not just the pilots who rely
6 on this data. It's also economic developers and
7 steamship lines that are determining what kind of
8 vessels can call on our port and what type of
9 opportunities can be realized. We also love our
10 digital charts, as well as services from the
11 National Weather Service and NOAA's waterborne
12 assets.

13 That really helps us with heavy
14 weather planning and recovery, and when you think
15 about what goes into opening and closing a port
16 with the Coast Guard captain to port in times of
17 emergency, and how do you safely turn off and
18 then back on the economic engine that is the
19 port?

20 I want to talk to you just really
21 briefly about what we're doing currently, with
22 our widening and deepening of our channel. We

1 call it wider, deeper, safer and we have
2 authorization and funding to take our Norfolk
3 Harbor channel to 55 feet, and our southern
4 branch to 45 feet.

5 Now the Corps' 2018 Chief's report
6 recommended authorizing an additional two feet of
7 depth for our Atlantic Ocean channel to 59 feet,
8 an additional foot of depth to 56 feet for our
9 Thimble Shoals channel. But more importantly is
10 the widening of our Thimble Shoals channel to
11 1,400 feet overall, and the Chief's report did
12 support that recommendation, as well as giving us
13 FY19 work plan funds of \$3.5 million for pre-
14 construction, engineering and design, which is
15 currently underway and our dredging project is
16 scheduled to begin construction in January 2020.

17 Now what that means for us to have the
18 widening and deepening of our channel, is to
19 allow two-way simultaneous traffic 24-7/365 in
20 all but the worst weather between our ultra-large
21 container vessels or ULCVs, and our large Naval
22 assets.

1 Also with taking the channel down to
2 deeper depths, it allows us the potential of
3 realizing a potential larger boat carriers for
4 coal, so the cape-size class vessels. And
5 between these ULCVs and the cape-size vessels,
6 that accurate real-time data is crucial for the
7 safe navigation for our partners, the pilots.

8 This is just a graphical
9 representation again of what we have going on.
10 WRDA 2018 did authorize the 59 feet for the
11 Atlantic Ocean channel, as well as the 56 feet
12 for the Thimble Shoals channel, and that widening
13 to 1,400. Now these infrastructure projects
14 drive growth. For the Commonwealth and not just
15 for our state, but also for the mid-Atlantic
16 region and the heartland corridor, if you will.

17 But when you think in terms of growth,
18 growth also brings challenges that have to be
19 overcome. It's no secret that vessels are
20 getting bigger and bigger. They're continuing to
21 be built bigger and bigger, and that creates
22 different hydrographic type conditions that our

1 vessel operators have to deal with, that our
2 pilots have to deal with.

3 We never believed that we would have
4 14,000 TEU vessels calling in the port of
5 Virginia, but in 2018 alone we had 160 of them.
6 So now that is very common. We have this three
7 to four times a week, and it shuts down the
8 channel for one-way traffic for three to four
9 hours at a time.

10 Right now, we're currently modeling
11 18,000 TEU vessels. We're going through the
12 simulations so that when the channel is deep
13 enough and wide enough to be able to bring in
14 these vessels in the future. When you look at
15 companies such as CMA CGM building their 2,200
16 TEU vessels, currently they're not scheduled to
17 come to our port at this moment.

18 But when you continue to widen and
19 deepen, who knows the possibility because that is
20 what these commercial carriers are looking at.
21 Again, I'm going to sound like a parrot because
22 it all ties in here, is when our partners at the

1 pilots, they're coming in and they're bringing in
2 these vessels, they're dealing with these in the
3 simulators.

4 They're simulating what these crab
5 angles are going to look like, what the different
6 hydrodynamics are going to look like. It's one
7 thing to have things modeled; it's another once
8 the vessel actually shows up and they have to
9 deal with these real-time conditions.

10 Therefore, it is just imperative that
11 through our PORTS program, we continue to have
12 this accurate real-time data, to aid them in this
13 decision-making for the safe navigation of these
14 vessels in and out of our port.

15 So what does that really mean for us?
16 In order to bring in these larger vessels in the
17 Commonwealth, we need a fully funded federal
18 PORTS system. We're happy with the
19 infrastructure that we currently have, but we
20 need the funding to be in place to have it
21 properly serviced and maintained with an
22 assurance that this level of service and the

1 maintenance will be there in the future.

2 Because when you think about
3 commercial development, these companies that are
4 making these decisions, these investment dollars,
5 they're thinking five, ten, twenty years down the
6 line, and so they need to be able to depend on
7 having these services in place in the future.

8 Other items that we need or that we've
9 discussed further down on our list, an improved
10 Cape Henry wave buoy. This allows us, especially
11 in consideration of the cape class vessels,
12 getting an idea of really where that tide is
13 going to be, and so that they can start that
14 inbound approach is crucial for getting those
15 coal vessels in and out.

16 Also, trustworthy PORTS data informs
17 in the way of CORMS. I have a story later on,
18 it's actually pretty interesting, relating to
19 that. Some of my colleagues had mentioned
20 before, consolidated bathymetric data, both
21 inside and outside of the channel. When you
22 think of the work that the Corps does, when you

1 think of the work also that NOAA does, it's
2 having a consolidation of all that data in one
3 place, up to date, real time, accurate to drive
4 these decisions.

5 And finally as mentioned before,
6 consolidated dashboard for PORTS-type data. It's
7 no secret if you go to the National Buoy Center,
8 you know, that data is over there. You have
9 tides and currents over here. If you're like me,
10 you might have four, five, six, your own PORTS
11 page. You have six tabs open and you're going
12 through the Internet, checking all these pages.

13 So we know the data's there. It's
14 just an easy fix, we believe, to have that data
15 consolidated in one type of central dashboard to
16 aid in that real-time decision-making. And
17 really all this, as I said before from the
18 commercial standpoint is this allows the safe
19 facilitation, excuse me, of economic growth.

20 So just a few stories here as it
21 relates to why this data's important, not just to
22 the pilots, not just to the port authority, but

1 to the actual users and stakeholders of the
2 channel.

3 The first one is easy. Our pilots and
4 pilots nationwide use this data all the time, and
5 they need it to be real-time, accurate and
6 vetted. My friend here who likes the CBIBS buoy,
7 we actually had -- we had a story as far as our
8 CBIBS buoy, where there was an incident where
9 there was a report that a 17-foot wave was coming
10 towards Hampton Roads, and it caused a little bit
11 of mild panic.

12 It was information from the CBIBS
13 buoy. But basically we were able to call CORMS
14 and they said no, that is not happening. That is
15 not the case, and it was discussed that kind of
16 looking at the design of that buoy, that it had
17 possibly gotten sideways with its accelerometer
18 and then a wave hitting it and it appearing to
19 have this large surge of 17 feet.

20 That's a real concern for our
21 stakeholders, in that if that data exists, that
22 it's 100 percent okay. But it needs to be

1 clearly delineated out from what is CORMS data,
2 what is accurate data and what is data that has
3 not been vetted.

4 As a prior Coast Guard office as well
5 as when I was doing economic development, port
6 storm recovery. When the captain of the port is
7 sitting there looking at making decisions on
8 whether to open or close the port and he has the
9 stakeholders call all around, being able to look
10 in real time and see what the data is, what's
11 happening with the Metocean data, what are some
12 of the forecast conditions to really aid in that
13 decision-making and when vessels need to be kind
14 of kicked out of the port, if you will, and then
15 when can they be brought back in.

16 Especially with we're the second
17 largest port on the east coast, and with the
18 largest Navy base in the world and the entrance
19 to the Chesapeake Bay, it is vital for us to get
20 our approach opened up, you know, when you think
21 of the capes and when are we officially opened
22 and closed for business.

1 And finally as I said before,
2 companies that are looking to invest dollars
3 nationwide, they look at this type of information
4 on PORTS data. I was in the Gulf Coast where my
5 friend Sean and we were developing these
6 shoreside infrastructure projects for terminals.

7 When we were doing site selection and
8 vetting sites, we were on the PORTS page. We
9 were looking at these different conditions to
10 know not only what the depths are, but also what
11 are the tides and currents like, what are the
12 different factors that are at this specific
13 location.

14 So a real encouragement is that these
15 investment dollars, a lot of case in our
16 waterfront infrastructure, both on the private
17 and public side, rely on this type of data to
18 make sound business decisions. My friend and
19 probably a friend of many of you, Captain Bill
20 Cofer of our Virginia Pilots Association, he
21 really wanted me to translate that, you know,
22 we'd be lost without our PORTS page, and we need

1 to be able to rely on its being fully funded and
2 there for the long run, driving economic
3 development in the Commonwealth and our nation.
4 Thank you.

5 MEMBER KELLY: Thanks Will. Our next
6 speaker is Ms. Susan Monteverde, Vice President
7 for Government Relations, American Association of
8 Port Authorities. Susan joined American
9 Association of Port Authorities in 1999 to serve
10 as the head of the Government Relations
11 Department.

12 She's responsible for planning,
13 developing and conducting AAPA's legislative and
14 regulatory affairs program, in cooperation with
15 AAPA president, AAPA committees, the AAPA
16 Legislative Policy Council and other government
17 relations staff.

18 Prior to joining AAPA, she was
19 department head for Environmental and Public
20 Affairs for the American Chemical Society, where
21 she determined the strategic direction for the
22 Society's government relations program and

1 managed part of its implementation.

2 Susan also worked in the government
3 affairs operation of the National Solid Waste
4 Management Association and the Miller Brewing
5 Company. Hmm. Now there's a liquid management.
6 She holds a B.A. -- if you need a help in
7 research, you know, if you have any contacts,
8 we're okay.

9 She holds a B.A. in Political Science
10 from the George Washington University in
11 Washington, D.C. and she'll speak to us about
12 NOAA Navigation Services and PORTS. Susan, the
13 floor is yours.

14 MS. MONTEVERDE: Thank you. Thank you
15 for inviting me today. As you can tell, we have
16 a variety of people who are real experts in this
17 area. Me, I'm a registered lobbyist in D.C. So
18 I help NOAA get their money in addition to other
19 things.

20 How many people here are familiar with
21 AAPA, other than we said it 20 times in my --
22 I'll have to revise that. I realize that when I

1 got here, I was traveling and so as some of you
2 know who, you know, and I said oh my gosh, did
3 somebody at work send something? But I realized
4 I need to update that. A few less AAPAs, and
5 APA.

6 MEMBER KELLY: I used up a year's
7 portion of A's.

8 MS. MONTEVERDE: Anyway, well you can
9 tell from my bio that I've worked in a variety of
10 government relations programs, from scientific
11 research, which is what the national, you know, I
12 worked for scientists. Even though it's the
13 Chemical Society it's mostly Ph.D. chemists, and
14 worked for beer, you know. You gotta get your
15 first job out of college. Get that under your --
16 but that was kind of fun.

17 Anyway, AAPA is a little older than
18 Will's group. We are over 100 and we're located
19 in Alexandria, Virginia. We do a lot of work.
20 We are public port authorities. I represent our
21 U.S. members, although AAPA has members
22 throughout the western hemisphere.

1 We do a lot of collaboration with our
2 members. We do best practices and exchange. In
3 fact, last week I was just in Miami for our
4 cruise seminar that brings together members from
5 Canada. Lots of Canadians came down, as you
6 might imagine, and U.S., Caribbean and Latin and
7 South America. So we have a real variety of
8 things, but in the -- in the government relations
9 space, we only work for our U.S. members.

10 And so in addition to education and
11 training and networking, we have a variety of
12 expert committees. I work and head the
13 legislative policy support, and then we do a lot
14 of outreach. So let me tell you a little about
15 PORTS, and how we are involved with what NOAA's
16 doing.

17 I've worked with NOAA for as long as
18 I've been in the AAPA, which is over 20 years,
19 and we are really excited to show our joint
20 support for the fact that we're a maritime
21 nation. When I first came, because I came not
22 from the maritime community, and I worked for

1 industries such as chemists, which aren't exactly
2 something people in Washington want to hear
3 about, but they do want to hear about scientific
4 research, you always take what you're talking
5 about and put it in the way they're talking about
6 it.

7 So when I first got here, we were
8 talking about dredging. Let's go to sleep and
9 snore. Let's talk about infrastructure, let's
10 talk about safety, let's talk about fun for you
11 guys. We pay for it, but you get to have fun.
12 So things like that that are important, you know,
13 we really have tried to work better and work with
14 NOAA on trying to not just --

15 Of course we're always talking about
16 money, but we want to do it in a way that's
17 important to other people. So we spend, I spend
18 a lot of time on that. As you heard from our
19 other speakers, we work just in the commercial
20 navigation area, just the public port area where
21 the big ships all come in, a lot of the cruise.

22 You heard a little about some of the

1 cruise ships can't come in as well. So that's
2 something that we work a lot on. Almost all the
3 cruise facilities are our members in the United
4 States, or almost all of them, and we do a lot of
5 the big ships.

6 We spend a lot of time educating
7 Congress. For NOAA for example, we are concerned
8 that you've heard here that the PORTS program
9 pays for the installation, but even though
10 Congress originally at one point said it should
11 pay for everything, that has been the difficulty
12 and often port authorities are actually paying
13 the bill for a lot of the PORTS program, and I'll
14 get into that in a little while.

15 But that is one of the challenges,
16 because some ports might have some deeper pockets
17 than other ports, and is it really fair to a
18 pilot to say oh, we don't really have the money.
19 You guys just go under that bridge and hope to
20 God you get through. I mean that's, that
21 inconsistency is really a problem.

22 So as I said, we do a lot of work on

1 educating people about the maritime industry.
2 You probably know a lot of these statistics, you
3 know. Hopefully when you get up today, you had
4 something that affected you that came through
5 global trade and came through a port. It might
6 have been the coffee, it might have been clothes
7 you put on.

8 If you have a foreign car, that might
9 be one of the things. Some of the gasoline might
10 have come, been imported into the United States.
11 So there's a lot of stuff we don't think about.
12 We also are big on exports. You know, everybody
13 wants exports. 95 percent of the world
14 population and 80 percent of the consumption is
15 outside the U.S.

16 Many times our exports really depend
17 on a very efficient and inexpensive system. So
18 the more that we can do to make it inexpensive
19 for those exporters, the better they'll do, and
20 the PORTS program is an essential part of that.
21 In the maritime industry, our estimate is 26
22 percent of the GDP is related to maritime

1 commerce.

2 So there's a lot of maritime
3 infrastructure. I'm happy today to talk a little
4 about the PORTS infrastructure because -- P-O-R-
5 T-S, not our ports. I'm sure many of you have
6 been to a port I hope, or maybe you've driven by
7 one. My kids really hate when we drive to -- my
8 family's from Philadelphia, and every time we go
9 by they're like oh, there's the cranes. Yes,
10 it's Baltimore. Yes, it's Wilmington.

11 The big cranes actually have been
12 good, because the general public sees it more,
13 especially in the coastal area. But we're
14 normally in urban areas. We often have things
15 like bridges that we have to deal with. We have
16 congested roads. We have to get that cargo in
17 and out often.

18 People kind of think about the water
19 side, but not really okay, the land side, what do
20 you do once it hits the port? So we spend a lot
21 of time in Washington talking about that as well.
22 But we are here today to talk about the water

1 side, and how to make it more efficient and how
2 to make it safe.

3 Sorry, this is -- again, safe and
4 efficient freight movement is both our priority
5 and NOAA's priority, so we're happy about that.
6 We look for timely arrival and departure of ships
7 at the dock. We'd love to say that all ships are
8 on time, not true. Weather can be a big part.
9 Key components are the nautical charts, the
10 hydrographic surveys, safety and efficient, as I
11 said the NOAA PORTS program, which is what we
12 primarily work on when we do a lot of the
13 advocacy up on the hill.

14 But we also talk about these other
15 areas, and then the Weather Service. That has
16 become, as we've had extreme weather events we,
17 our members have become much more involved in
18 storm response, and trying to figure out not only
19 how to, you know, whether they have to move. For
20 example on the land side, there was an example in
21 New York with Hurricane Sandy, that a lot of the
22 trucks actually had electronic starters, and

1 after the salt water came in, when they went to
2 start them, they blew up.

3 So all this -- all these trucks that
4 would have left the Port Authority of New York
5 and New Jersey weren't able to do that. So the
6 question is how do you make sure you have the
7 equipment protected in the right area? So we do
8 a lot of that with the Weather Service.

9 And then dredging for depths and
10 widths. When -- you heard a little about the
11 deepening in Virginia. We have to make sure
12 those navigational lanes are put back in a timely
13 manner when those things occur.

14 So let me give you an overall view of
15 the PORTS system. There's 33 PRTS systems
16 serving 76 seaports, and this is a map of it.
17 Most, you know, most cargo comes through this
18 ports, these ports in the United States. So I
19 went and I put an email to some of our members,
20 all our members, U.S. members, and said well what
21 do you think of the -- I was doing this
22 presentation, what would your recommendations be?

1 Some of them actually came through the
2 pilots, even though we have a pilot here and I'd
3 like to submit for the record something I got
4 from the Lake Charles ports. But the challenges
5 are maintenance of an aging system. As I
6 mentioned, maintenance is a huge issue. It's
7 inconsistent.

8 Will and I were talking, and if I
9 misspeak, please let me know. In Virginia, the
10 Navy pays for it, correct, in the whole port area
11 in Newport News, or is it all of the port of
12 Virginia?

13 MR. FEDIW: I believe yeah, they're
14 covering --

15 MS. MONTEVERDE: Okay. So the Navy
16 pays for it, your tax dollars. In other areas,
17 let's take in Baltimore. The Port Authority pays
18 for it. Their estimate is about 400,000 a year,
19 not a small amount of money. In other ones, it's
20 a consortium. Some places they run out of money.
21 As I said, smaller ports, that can be a problem.
22 So as we look at these older systems and how do

1 we, you know, we all have our smartphone that we
2 didn't have before, you know, all these new
3 technologies, how are we going to pay for those
4 and how are we going to get new services with a
5 flat budget?

6 We also, as I said, post-hurricane
7 navigation channel surveys are really important,
8 and we want to make sure we do that. And make
9 sure the nautical charts are up to date.

10 Sometimes the paper ones seem to take a little
11 more time than the others. So what I heard, a
12 lot of kudos. People love the PORTS system,
13 although some say the liability that we heard
14 before is a bit of a problem.

15 They thought perhaps look at, have
16 NOAA look at in each of the ports areas which
17 ones are the biggest safety issues and
18 reliability issues. For example, ship clearance
19 often is a big issue for folks, and there might
20 be some -- there's a lot of sensors out there,
21 but there's certain ones that should be a higher
22 priority for safety and for use if we know who's

1 using those.

2 Anyway, we also want to accept and
3 share data from non-PORTS sensors. We've heard a
4 little of before about the importance of trying
5 to make NOAA information available, but also
6 integrate it with others. If we switch to
7 towers, to satellite signals, how are we going to
8 pay for that? What's the system to do that?

9 And then we also got in the government
10 shutdown some of the PORTS staff is not
11 considered essential employees. And so if you
12 have a problem or maintenance problem, you just
13 have to wait until the government's open. Now
14 that didn't used to be a problem, but in this day
15 and age it seems to be a little more of one.

16 So in summary, let me first say that
17 we're excited and to continue to partner with
18 NOAA. We will continue to be a strong advocate
19 in Congress about the need for NOAA's services.
20 We want to partner with you and folks to continue
21 to tell people that America's a great maritime
22 nation, and we just hope that the cost issue.

1 Washington's a tricky place and
2 there's a lot of competition out there. As port
3 authorities, while we do often help pay or
4 sometimes solely pay for the PORTS system,
5 there's a lot of pressure on ports as well.

6 So we need some insights into how much
7 is this going to cost not just today, not
8 tomorrow, but you know in a month, in two months,
9 in five years, so they can build it into their
10 budget and figure out how can we focus on the
11 most important things. Thank you for your time.

12 MEMBER KELLY: Thank you.

13 CAPT CROCKER: Well first I'd like to
14 thank the panel members for taking their time and
15 providing a lot of really insightful information.
16 At this time I'd like to open up to general
17 discussion and start off with the HSRP members,
18 if there are any questions that you would like to
19 ask any of the panel members. Captain Kinner.
20 Mic.

21 MEMBER KINNER: Sorry, I forgot. My
22 voice doesn't carry either. It kind of relates

1 to a comment I made this morning about getting
2 information out to basically my constituency,
3 which is the little guys.

4 There's a constant reference to
5 putting information out by AIS. I happen to have
6 one on one of my boats, so I can show it on the
7 radar, I can show it on my plotter. What I get
8 is the typical information. Who is he, how big
9 is he, where is he going, how fast is he going?
10 Is there some specific format, I guess there's
11 two parts to the question.

12 One is there some specific format when
13 you're putting out the safety information through
14 an AIS system, and two, is there some sort of
15 mechanism for receiving it for somebody who
16 doesn't happen to have an AIS transponder on
17 board? It occurred to me maybe this exists,
18 maybe not.

19 I've got apps on my phones for buoys,
20 for the nautical flags, for the rules of the
21 road, for BoatUS. Is there some kind of an app
22 that has been or could be developed to receive

1 AIS information, and if so how do we get that
2 information out to your and my constituents?

3 CAPT VISO: I can speak to that.
4 Specifically, that information is coming through
5 AIS' binary message. You have to have a receptor
6 for it, some way to receive it, which I think is
7 where you're driving at. Right now, that's
8 currently in portable pilot unit softwares that
9 are also being used.

10 Rose Point, for example, which is used
11 across pilot organizations and a lot of tug and
12 barge operators are using Rose Point, and that
13 will receive that information and present it
14 graphically or in text. But it's out there, but
15 you have to have a method to receive it.

16 You can also -- you get it on an app.
17 I can show you. I have a CIQ on my phone.

18 CHAIR SAADE: Can we just have a
19 moment? We have the app right here.

20 CAPT VISO: Yeah.

21 RDML S. SMITH: So it is possible.

22 MEMBER KINNER: I'd like to get that

1 app, and then I'd like to know how we can get the
2 word out to the small boat fleet that they don't
3 necessarily have to install an expensive AIS
4 transponder, but that they can in fact when they
5 have cell phone available, get that information
6 real time.

7 MR. EDMONSTON: Speaking as a small
8 boat guy, I do have that app and I think for most
9 of the country, it's probably not relevant right
10 now. Most of the country, you're not going to
11 ever need AIS. It's in the places like around
12 here, Annapolis, Baltimore, that you're going to
13 need it and when I happen to turn AIS on my chart
14 plotter, it blots out the entire screen. So that
15 kind of defeats the purpose of it to a large
16 degree.

17 DR. MAYER: I think it goes beyond
18 just the AIS information. It's the fact that
19 this becomes a mechanism for two-way transfer of
20 information.

21 MR. EDMONSTON: It is and it -- it
22 is. You can use it for that.

1 DR. MAYER: And that's the key, is
2 that other pieces of critical information could
3 be transmitted that way, and hopefully in the
4 future with a little more flexibility.

5 MR. EDMONSTON: Right.

6 CHAIR SAADE: Okay. We have -- hold
7 on. We have a comment from somebody online
8 that's one of the HSRP members.

9 RDML S. SMITH: Anne, if you can hear
10 us, we're trying to unmute you.

11 CHAIR SAADE: Go ahead and try Anne.

12 MEMBER McINTYRE: As APA president,
13 you interface on an operational level with almost
14 all commercial ports in the U.S. Could you
15 please give us your perspective regarding funding
16 and ongoing operational support of PORTS funding
17 and operational support examples.

18 CHAIR SAADE: We're going to ask you
19 to repeat that. Just a second.

20 MS. MONTEVERDE: I think I got it, and
21 I think it was for AAPA, but it might be APA but
22 I'll take it. So the question is the funding for

1 PORTS and funding for navigation. As I
2 mentioned, it's a hard time in Washington. Sean
3 spends a lot of time up there. We sign letters.
4 We go up to the Hill.

5 I have to say though, there is a
6 coalition that works on it, but there needs to be
7 more of a coalition, because if I look at AAPA,
8 we have a lot of other priorities as well. While
9 we want to be supportive of NOAA, we have
10 dredging, we have land side, we have
11 infrastructure, we have security, we have
12 environment, we have a lot of things.

13 I do think those who scream the
14 loudest in Washington do get attention, and
15 Washington is very interested in hearing, I think
16 BoatUS is a very, a great place, you know. They
17 have a lot of members. You can bring this issue
18 up and maybe you could talk a little about that
19 as well.

20 We are holding our own, I guess I
21 would say, and maybe Sean you'd like to, because
22 you probably spend more time than I do and AAPA

1 does on that.

2 MEMBER DUFFY: So as you know, I'm in
3 trouble all the time. I'll be careful and simply
4 say that as Anne mentioned, Big River Coalition
5 looking at full federal funding for the PORTS
6 system is something that I do outside of the
7 panel, and we believe that is very, a very
8 important effort.

9 I'd rather make sure that we're on the
10 same page by sharing that letter privately to try
11 to not step on that next mine below my feet. But
12 I do think it's very important and something that
13 we talk about.

14 Of course, maritime operations eat a
15 lot of the federal budget, and one of the
16 challenges as we all know is that pie has to get
17 bigger so that the slices can get better, or
18 we're robbing one project to fund another, and I
19 think that's where we remain right now.

20 But definitely would be willing to
21 talk more offline, and hearing the discussion, I
22 realize that it's probably a good time to touch

1 base and circle back with APA and AAPA to hit
2 that, and also with Virginia Maritime. I'll be
3 very quick.

4 So Ed Kelly and I and Will are both,
5 all three on the National Association of Maritime
6 Organizations, and in that effort I can say that
7 we will be trying to push for PORTS funding and
8 trying to help solve that problem.

9 MS. MONTEVERDE: I'm not -- I would
10 say it's aspirational for us and we'll continue
11 to ask for maintenance funding. But we really
12 haven't made headway on that issue in Washington.

13 MEMBER KELLY: And we would agree.
14 That's why at the NAMO Sean and I and several
15 other people with the NAMO organization have
16 spoken offline about bringing back a ports
17 coalition that had about 40 or 50 members at one
18 point. It was truly national, with various port
19 authorities, maritime interests, etcetera.

20 We're going to be back here in D.C.
21 next Thursday and Friday. It's getting to be old
22 home week, and we'll start launching that again

1 and we'll be sure and reach out to the whole list
2 of people that we can think of, including
3 certainly APA and AAPA.

4 CHAIR SAADE: Okay. We're going to
5 try to get Anne again on another comment.

6 MS. DENTLER: I'm going to speak for
7 Anne. Can you guys hear me okay? She wanted to
8 ask Captain Viso to comment on the specific set
9 he has encountered. Is that clear enough?
10 Please comment on specific set he has
11 encountered, specifics.

12 MEMBER McINTYRE: Just more specifics.

13 CAPT VISO: Of what? I'm pretty sure
14 Captain McIntyre's asking about funding. Is this
15 still echoing here?

16 (Off mic comment.)

17 CAPT VISO: Yeah. I wanted to bang on
18 the nail one more time here, and many of you may
19 have read a book that came out about six years
20 ago called, written by Rose George called Ninety
21 Percent of Everything. It detailed basically how
22 everything you come in contact with, and a couple

1 of people on the panel mentioned it earlier, that
2 what you come in contact with every day came by
3 ship.

4 When you think about all the stuff
5 that we deal with every day and it goes across
6 the country. It's not just at the port. The
7 port's just a landing spot.

8 From there it goes across the United
9 States, that something so critical as that, that
10 when it gets to PORTS funding that we should be
11 looking at the federal level and a lot more
12 support for something that is used by virtually
13 everybody in the country, but is focused in
14 specific locations. I just wanted to beat on
15 that one one more time. Thank you.

16 MS. MONTEVERDE: This is Susan
17 Monteverde again. You know, one of the
18 challenges, and I think as an advisory committee
19 that's a question for you, is when the President
20 puts his budget out and NOAA comes up with their
21 recommendation, we don't see maintenance in that
22 budget.

1 So Washington's a baseline. It's hard
2 to get an increase from the President's budget.
3 So again, if maintenance is important or the
4 inconsistency in maintenance, who pays, who does
5 this, and as I said right now port authorities
6 are willing to pay for part of it. But if this
7 gets really expensive, that's not going to
8 continue. You know, that's going to be a bit of
9 a challenge for port authorities.

10 So I think looking at that system is
11 one that I think maybe this advisory committee
12 might want to look at. Is it inconsistent, is it
13 fair? Who's paying, who's using, things like
14 that.

15 MEMBER KELLY: I just can't help
16 myself. I always have to chime in on federal
17 funding for ports. The issue is not just that
18 the port authorities can pay for, but the system
19 is getting more robust. We need to expand the
20 systems. The cost of doing that and moving
21 towards more precision navigation style products
22 in more and more ports is going to continue to

1 push the cost to do that up.

2 It not only affects every citizen of
3 the United States for our maritime trades and the
4 business that moves and the economic engines, but
5 the reality is that some of the biggest users of
6 the port systems are not the large commercial
7 operators that the port authorities are primarily
8 representing.

9 They also, this port system is used by
10 recreational boaters. It's used by academics,
11 the National Weather Service. The Department of
12 Defense is a huge user. So there's so many
13 people that use this data, it continues to come
14 back why do the deep sea commercial vessels seem
15 to be the only people that have to pay for it.
16 So there's an equity issue at stake here as well,
17 and I think it is something that, you know, has
18 come before the panel before and, you know, at
19 least for as long as I'm sitting in there will
20 continue to come up at every meeting.

21 I think it's something we should
22 strive for and we should look for. Money in

1 federal budgets, we understand, is a difficult
2 thing to find, but it is something that I think
3 we're hearing universally in every place we go,
4 is that that is an end goal that needs to move in
5 that direction.

6 CHAIR SAADE: Julie.

7 CO-CHAIR THOMAS: I have two quick
8 comments. One is Chris, I will talk to you if
9 you have a minute afterwards, because I can --
10 there is an API to grab some buoy data that might
11 help you out. Will, if I could maybe touch base
12 with you, because I think it's very specific.
13 But you have expand capabilities for the Cape
14 Henry wave buoy, but then you mentioned that you
15 wanted to know about the tidal data more
16 precisely.

17 So maybe we could talk about that,
18 what exactly is going on there, okay. Thank you.

19 CHAIR SAADE: Kim, go ahead.

20 MEMBER HALL: Thanks. This question
21 I guess kind of falls to the whole panel, because
22 we've talked about it a little bit, but I think

1 to Chris. Specifically, I've always -- it's been
2 a long-going problem with AIS and what
3 information is set out there. People think it
4 should just be the ship data and nothing more
5 than the ship data.

6 Where currently is the hiccup? Where
7 is the stopping point? Is it still IMO deciding
8 things, IMO being the International Maritime
9 Organization, on what data can how -- talking
10 about the SOPs for doing that and the process for
11 doing it? Well what's stopping it? Because I
12 know the Coast Guard has some issues, I know that
13 other folks have issues or it's just -- it could
14 be way too much data. How do you --

15 MR. EDMONSTON: Well, the ship data's
16 fine. If you're using it for other purposes,
17 then you come into some potential legal issues,
18 yes. Yep.

19 MEMBER HALL: So where is the current
20 sticking point? Do you know, because I mean it's
21 been -- this is not a new problem.

22 MR. EDMONSTON: Well, it's --

1 MEMBER HALL: Pointing fingers.

2 MR. EDMONSTON: Yeah.

3 MEMBER HALL: Okay. So for the
4 panel's perspective, and we write something up if
5 we're looking at recommendations or bringing it
6 to attention. Not that they wouldn't know, but
7 it always helps sometimes hearing from a panel
8 like us. Where could we kind of expand --

9 MR. EDMONSTON: It would be defining
10 what goes on there, I would say or what kind of
11 data, how much data. If you could silo the
12 streams or something like that. I would imagine
13 I'm not the technical person to answer that
14 question. I know that there are some legal
15 issues with adding new data streams onto it.

16 MEMBER KELLY: Folks just -- and we'll
17 jump off from the panel right here. Ed, we'll
18 give you two minutes. Captain Ed Page is pretty
19 much every day up to his eyeballs in AIS-related
20 stuff, and Ed, please try to keep it to about two
21 minutes and just shed some light on that
22 situation.

1 MEMBER PAGE: Ed, you know that's
2 impossible.

3 MEMBER KELLY: Try it.

4 MEMBER PAGE: Real quickly, I mean IMO
5 just came out with a document that's encouraging
6 for the use of eNav and going on this road of
7 using AIS. So you know, some of the
8 complications are just the software technology,
9 as far as being able to like CTIQ is triggered at
10 IO Coastal Explorer or Rose Point, as you
11 mentioned there Captain.

12 So you know, the technology, some is
13 the cybersecurity issue. The Coast Guard has
14 concerns that this is an open architecture, where
15 they have a kind of closed bubble and now they're
16 transmitting information, and so they're trying
17 to find how to do that.

18 And but everyone's going on the track
19 light. It's a matter of changing technology.
20 AIS was designed with this capability, but it
21 initially just looked at tracking the vessels,
22 and later on they started building these systems,

1 and some of that capacity as far as the -- if you
2 put too much data out, that's why the Coast Guard
3 has to control the data going out. Otherwise,
4 you overwhelm the system and they can't have the
5 capacity of doing it.

6 But it's moving in the right
7 direction, and there are more and more solutions
8 coming online. But we've built 30 transmitting
9 stations in Alaska. We transmit in virtual
10 buoys, we transmit aids to navigation, weather
11 information, you name it. Other ports have done
12 it around the country.

13 So it's happening. It's just not
14 totally institutionalized. It's developing
15 software, hardware, policy. It's all developed.
16 So it's moving in the right direction. It's
17 complicated. Is that two minutes?

18 MEMBER KELLY: I think maybe even
19 less. Congratulations. It's a first.

20 MEMBER PAGE: Okay, Ed.

21 MEMBER KELLY: So we don't want to
22 beat one issue to death, but we just have to

1 remember that when AIS first came out, it was a
2 vessel collision avoidance system. It just
3 became so robust that all these new possibilities
4 have opened up. So it's going to continue to
5 evolve I'm sure.

6 What I'd like to do, I know we oft-
7 time neglect geodesy, and that's an extremely
8 valuable portion. Dr. Abdullah gave out kind of
9 a hit list of things he thinks could be fixed or
10 opportunities. Juliana, perhaps you could
11 address a couple of those.

12 MS. BLACKWELL: It's quite an
13 extensive list for all of our program offices.
14 So thank you, Dr. Abdullah. That was very
15 thoughtful and I appreciate the work that you did
16 with your colleagues to provide us that feedback.
17 I'll take some of the easy ones and try to
18 address them, and let you know that we're working
19 on -- we're working on many of the things you
20 mentioned, but we're at different levels of
21 completion and we're going to continue to work
22 down that path.

1 One in particular, the first that I
2 wrote down had to do with the CO-OPS and the NGS
3 benchmark data, and I know that we are working
4 together and our database people are working at
5 how we can exchange that data and make it
6 available seamlessly, so that that information
7 isn't in two different places and different.

8 Now whether or not the benchmarks will
9 have NAVD 88 heights on them, I can't answer that
10 right now. But I can follow up with you and
11 others to give you that information, because I'm
12 not quite sure what the status is of all of the
13 CO-OPS data.

14 But we do have a team that's working
15 together. They updated us in December on
16 progress, and so hopefully I don't have an
17 estimated date for that, but that is something
18 that we're working on. As far as the tidal datum
19 epoch, well I'll leave that for Rich to answer,
20 as to when that would be available.

21 And then I think one of the other ones
22 that I noted down was related to the CORS, and

1 I'm not sure exactly how it was framed on your
2 slide, but in thinking about PORTS and some of
3 the other things and maintenance and what it
4 takes to support a system, really a crowdsourcing
5 user-contributed system is CORS.

6 If there's 1,800 stations
7 approximately in the NOAA-managed network, NOAA
8 owns very few of those. By few, somewhere
9 between 40 and 60, depending on how you count
10 them. Most of those stations are from our
11 partners, and there are over 200 groups that have
12 those available.

13 But at some point you reach a capacity
14 internally of what you can manage, and I would
15 say in order to grow that, you know, we're at
16 that point right now where we've been holding
17 about to 1,800 stations for a while now, because
18 we've kind of maxed out what the personnel that
19 we have and the network that we have, the IT
20 network, the redundancy, that, you know, the
21 baseline that we have internally to enable that
22 to grow and to modernize it so that it's truly

1 GNSS-capable.

2 Not just GPS U.S. system, but how do
3 we -- how do we improve it and how do we reach
4 out to our partners, do that we can not only have
5 upgraded equipment at those sites, that they
6 upgrade and we give them guidance on it. How do
7 we update our software and how long is it going
8 to take so that we can incorporate all those
9 different types of satellite system data?

10 When you do that, you're even going to
11 be able to improve your positioning even better
12 when you've got multiple satellite constellations
13 that you're integrating into one, into one
14 receiver, one antenna. So we are working on
15 that. It's going to take a number of years, and
16 of course it's based on the resources that we
17 have available.

18 But at this point, I would say we're
19 just trying to maintain what we have, and I
20 think, you know, when you're talking about ports
21 and funding for that, I mean there's an expense
22 to building in a new area and outfitting it with

1 the right sensors, but there's also an expense on
2 the other side of the personnel that are
3 required, especially if you make them, you know,
4 essential, which was one of the great comments
5 about what happened during the shutdown and any
6 feedback that you had for our products and
7 services that weren't available.

8 So there's different ways of looking
9 at the cost of that as well. So I know that
10 doesn't answer many of things that you brought
11 up, Dr. Abdullah, but I hope that you realize you
12 touched on a couple of them, and we're continuing
13 to work through our strategic plan, through our
14 outreach efforts and through building support to
15 continue to build out the resources and the
16 products that we need to make it even a more
17 robust system for positioning in the future. So
18 I'll hand it over to Rich and see if you have
19 anything you want to add to that.

20 MR. EDWING: Yes. Rich Edwing, and
21 again I very much appreciate it, your multiple
22 slides of I think very specific and insightful

1 comments. I stopped writing down, because I
2 figured I'll get your -- too much to write down.
3 But all I'll say is I think the good news, as
4 Juliana said, many of the things you mentioned we
5 are already working on, and actually we just came
6 out with the new strategic plan.

7 A lot of the things you identified are
8 in that strategic plan to work on. So it's a
9 good validation of some of the priorities we've
10 set out. So I really appreciate it.

11 DR. ABDULLAH: Thank you.

12 MEMBER KELLY: I'd like to draw
13 attention perhaps to NOAA's first responder
14 units. Perhaps I could ask both Will and Susan
15 to make any comments regarding the NRT, the
16 Navigation Response Team. You both have
17 experience with port disaster situations, and the
18 NRTs are kind of like the ambulance drivers and
19 the fire people.

20 You hope they never have to come to
21 your house, but when they do, you're thoroughly
22 pleased with how professional, efficient and how

1 helpful they all actually are. I just have
2 nothing but great things to say for our recovery
3 after Sandy and other storms.

4 But perhaps, you know Will, any
5 experiences in Hampton Roads and of course, you
6 know, Susan perhaps overall.

7 MR. FEDIW: So again, I'd like to just
8 reiterate how important it is to have both in not
9 only just the pre-storm type of preparedness but
10 the post-storm recovery. When, like I said, when
11 you have vessels sitting offshore, whether it be
12 container ships, petrochemical carriers and the
13 millions of dollars that are sitting offshore
14 waiting to get in, and especially if you have
15 critical facilities that need certain products or
16 supply, again thinking about the petrochemical
17 industry.

18 But not only that, but when you think
19 of national defense, like Hampton Roads and
20 Norfolk Naval Base, the biggest in the world. So
21 to have teams that can come in immediately and
22 survey an area, make sure things are safe for

1 navigation, and to again turn the economic engine
2 back on, it's millions and millions of dollars
3 daily, as well as keeping just that continuity
4 and flow of goods and assets and also national
5 defense.

6 MS. MONTEVERDE: Recovery is really
7 important for our members, and as you've heard
8 from Will, on getting folks up and going as soon
9 as possible. It's kind of something you don't
10 hear about. You hear about FEMA all the time,
11 but you never really hear about NOAA or the Corps
12 of Engineers going out and making sure that those
13 channels are safe.

14 So that's really important. It might
15 be something that this group needs to highlight
16 more, that this is an important component. It
17 needs to continue to be, have strong funding and
18 it really is essential to getting our maritime
19 system up and running after a disaster.

20 MR. FEDIW: And I'll just add one more
21 comment on that. You don't realize how important
22 it is until you're the port that after a storm is

1 told that the nearest survey vessel is two days
2 away, and then it really starts to cause an
3 impact and a hurt. So you definitely want those
4 assets in place, so you can appreciate them
5 before you need them desperately.

6 CHAIR SAADE: Anuj, go ahead.

7 MEMBER CHOPRA: Thank you. Two
8 questions actually, one for Captain Viso and one
9 for Susan. Captain Viso, we've been facing a
10 massive amount of fog days in the Gulf and other
11 areas, which is hampering traffic. When we look
12 at Europe, Europe is now able to manage traffic
13 with fog. If you had a dream board, a white
14 board, a white sheet, what do you think we would
15 need to have traffic working 100 percent during
16 fog?

17 I'm sorry, I'll say the next second
18 question as well, and that's for Susan. Susan,
19 looking at the AAPA, what's your policy on the
20 ocean rise? How do you see it? How do you
21 tackle it and what's your strategy towards
22 expected ocean rise, as most of the scientists in

1 the world are saying that? Thank you.

2 CAPT VISO: White board starting, I
3 would start with an air heater and a big fan.
4 No, well and we were talking about this before
5 the panel started, how the ports are set up in
6 Europe are certainly different than they are in
7 the United States.

8 So it would take a shift in how the
9 overall picture is put together, and it would
10 take a coordination of a lot of pieces. There's
11 a lot of moving parts here. You've got the
12 technology to do some of this work. You need the
13 infrastructure from the shore side, so that comes
14 from the port authorities or whatever the
15 facility is, and you've also got a regulatory
16 framework to work with with the Coast Guard.

17 Across the board right now where I
18 worked in Tampa, the fog issue was always the
19 pilots call for many years. Then it was
20 structured after the Cosco Busan. So right now
21 in Tampa, the Coast Guard decides when the port
22 is going to open and it's taken us, as pilots,

1 out of the loop.

2 Now they have -- they have a criteria
3 that everybody knows, but it's structured. But
4 to answer your question, it's going to take
5 coordination between a lot of stakeholders. If
6 you want to facilitate, you know, a particular
7 industry that has time-critical movements because
8 of passengers, you have to get buy-in from the
9 other people that are working in the port, who
10 will also make a case as to why theirs is just as
11 important or more important than the other
12 people.

13 So everybody in a big room with a
14 white board would be a good start to answer your
15 question, and it would probably need more
16 infrastructure from the shore side too, and
17 regulatory. That's another piece with the Coast
18 Guard. They handle like pilots do kind of it
19 depends where you're at and what the conditions
20 are.

21 As I always say as a pilot, every port
22 is different, you know. The concerns in one

1 place are secondary in another, and those are
2 geographical, geographically driven or, you know,
3 weather conditions for that particular area. So
4 there's not a one-size-fits-all for any place.
5 But I think one group can learn from another, as
6 I've seen in the last couple of years. Thanks.

7 MS. MONTEVERDE: I got so enthralled
8 with the whole issue of fog I kind of forgot the
9 second question. But just to -- let me talk fog
10 for a minute, because we did -- I did hear when I
11 surveyed our members, that a lot of the fog
12 sensors are not working.

13 But it might be that there's certain
14 areas where it's really important, and in other
15 ports as we just heard, there's other priorities.
16 So I think it's really important to make, you
17 know, decide how important is it. Maybe on the
18 Mississippi, but in other areas it might not be
19 as important. I'm sorry. Your second question?

20 MEMBER CHOPRA: Sea level rise.

21 MS. MONTEVERDE: Sea level rise, oh
22 yes. Okay. So whether you believe in climate

1 change or not, we all know the sea is rising and
2 a more important thing often to ports is the
3 extreme weather events that are affecting us.
4 Now ports are used to tidal rises and falls.
5 That's pretty common.

6 So we -- when we do infrastructure
7 improvements on the water side, I'm sorry, on the
8 land side, we normally now our engineers do look
9 at sea level rise. A lot of the problem is the
10 connecting infrastructure, which we don't
11 control.

12 Now the good news on sea level rise is
13 your ship, maybe you don't need as much dredging.
14 But we don't talk about that that much. So but
15 on the land side, for example the Port of New
16 Orleans had a problem where they were ready to
17 open, but the roads coming into the port and the
18 railroad coming into the port weren't ready to
19 go. We don't control that.

20 So that is a big issue for us. We are
21 planning for it in our own facilities. But
22 again, the federal government or the state

1 government that owns that connecting -- if you
2 recall, I had a little visual about that. A lot
3 of that connecting infrastructure is not ours,
4 and hopefully we are seeing some improvements in
5 certain areas.

6 But it is a concern, because we do
7 want to make sure that we can -- we can deal with
8 that. The extreme weather events were a problem
9 with getting your personnel back. The facilities
10 themselves in most ports in extreme weather
11 events, we haven't seen big problems. Where
12 we've seen problems is we can't get electricity,
13 so we can't open the port.

14 But, by and large, and that's going to
15 be more of an issue, too, the grid
16 sustainability, as we move more to electricity,
17 encouraging ports to electrify. What happens if
18 the grid goes down in extreme weather events? So
19 they're all tied together. We're interested in
20 it and we're talking about it, but we don't
21 control a lot of the, you know, we certainly
22 don't control the grid. We certainly don't

1 control a lot of the connecting infrastructure
2 coming in and out of ports. But ports themselves
3 are looking at this from a structural point of
4 view, depending on, again, if they're in a place
5 that high/low wave and tides, they're kind of
6 used to that and take care of that now.

7 MEMBER KELLY: Yeah, Susan, I'd have
8 to agree. Lessons learned post-Sandy included
9 the fact that we've had the maritime and the
10 ports recalibrated for the grid, to get the
11 electricity back at the same level as hospitals
12 and other emergency criteria.

13 We found that they took a look and it
14 was said that there was no fuel in the port. We
15 had more fuel than we knew what to do with,
16 gasoline, but we couldn't get electricity to pump
17 it to put it into the trucks to deliver.

18 So you know, it was really taken and
19 looked at, and I think that has to be done for
20 every port, to be pre-prepared to change your
21 status for service recovery issues, and we've
22 done an awful lot with that with the states. I

1 think all ports really -- if we had done that
2 before Sandy, we would have had a lot less
3 trauma.

4 CHAIR SAADE: Nicole.

5 MS. LeBOEUF: Yeah, sure. Glad you're
6 thinking about sea level rise. I was just in San
7 Diego at Oceanology International last week, and
8 folks were saying oh, we're just going to design
9 floating ports. Great, okay. So that's one
10 idea. But I will reiterate. I think this is
11 going to be in everyone's lane here pretty soon.

12 What I did want to address is your
13 comment about getting the word out about our
14 emergency response capabilities. We've been
15 working really hard with FEMA over the last
16 couple of years to just even make them aware of
17 NOAA's capabilities.

18 It's a bit of a double-edged sword.
19 NOAA is relatively small, so I don't want to -- I
20 don't want NOS to turn into an emergency response
21 agency. We do a lot of other things. But those
22 conversations are including getting a broader

1 NOAA representation on the regional committees
2 that FEMA has.

3 They have regional councils that talk
4 about issues and typically NOAA has a Weather
5 Service person on those committees, and we're
6 educating the Weather Service person how to talk
7 about NOS-related issues. We also for the first
8 time just had all of our mission-essential
9 functions deemed as prescribed mission
10 assignment by FEMA.

11 That was a big achievement for us.
12 That means we're not going to take it out of hide
13 when we do respond to emergencies, and as I
14 mentioned earlier, we're also leaning into the
15 supplemental fund requests, so that people
16 understand or that Congress understands how much
17 we do have to do and are called upon to do after
18 disasters.

19 The yin and the yang of supp funds and
20 prescribed mission assignments is pretty
21 important to get that legally correct, because
22 there are appropriators that watch those things.

1 But we are leaning into that pretty hard, and
2 hope to really be more of a player.

3 CHAIR SAADE: Sean, go ahead.

4 MEMBER DUFFY: So I just wanted to
5 make one comment on fog. It's been one of the
6 challenges for us recovering the channel, the
7 Mississippi River Ship Channel this year.
8 Because of the fog has been so extreme, survey
9 vessels were unable to run and dredges were
10 unable to run, and ships were trapped offshore.

11 Where many vessel operators were
12 voicing that they wanted ships to move in the fog
13 and nothing else will be out there. At that same
14 time, Corps hopper dredge Wheeler went into
15 Anchorage and overnight was struck by a lift
16 boat, and a fisherman off the main channel lost
17 his life in the fog.

18 And I think that's one of the
19 complexities as we have non-commercial maritime
20 users, the fishermen, recreational boaters and,
21 you know, can we really control whether they're
22 out there or not. If there's nobody else moving

1 in the channel, then it makes sense that it would
2 be easier to deal with.

3 But how could we guarantee that.
4 Because of that, of course we don't want to have
5 survey vessels not able to perform their duty or
6 dredges not able to dredge. When you're trying
7 to recover your channel, you want all your
8 dredges going 24/7. So the fog issue is really
9 complicated, and again that's 256 miles of ship
10 channel.

11 So it's very different. I know a lot
12 of the fog sensors have -- I want to say I
13 remember about 20 to 30 miles of visibility. So
14 looking at predicting how to change that is going
15 to be a challenge. Right now, I think it's just
16 safer that they not move until we figure that
17 out.

18 CHAIR SAADE: Dave.

19 RDML S. SMITH: And Sal.

20 CHAIR SAADE: And Sal, yeah.

21 MEMBER MAUNE: I think the time will
22 come that America's vulnerability to the GPS and

1 GNSS system always being there is going to be
2 challenged by enemies of the United States and
3 even by local guys that have their own reasons
4 for jamming the GPS signals. I understand that
5 truckers in Germany, for example, use jammers to
6 jam GPS systems so that they don't get charged
7 for tolls on certain roads they drive on.

8 If it's so easy to jam GPS, does our
9 maritime industry have backup plans on what they
10 do in the event GPS isn't there for them?

11 MEMBER HALL: I can answer that one.
12 No, no. Maritime is one of the ones that's
13 farthest behind when it comes to cybersecurity
14 issues, like significantly behind the track and
15 are just trying to catch up in response. We're
16 in full response mode, not in planning or even
17 countering.

18 So it is a well-known -- we have the
19 one. My favorite is Teterboro Airport. There
20 was a gentleman who would come -- well, they
21 didn't know why. The airport kept going out, the
22 GPS would go out. So they were really curious

1 what was going on, couldn't figure it out, like
2 at three o'clock on a Thursday afternoon every
3 week.

4 Well, it turned out was it was a
5 gentleman in a truck and there's a no-name motel
6 at the end of the airport, and he would meet up
7 with his lady friend, and he didn't want his
8 company to know he was there. So he bought
9 himself a GPS jammer and it shut down that
10 airport every Thursday at 3:00 p.m.

11 So something as dumb as that is still
12 quite a problem for the industry, and it's not
13 just -- obviously that's not a maritime example,
14 but that is something that the Coast Guard's very
15 curious about.

16 IMO's been working on it and it's a
17 well-known problem. It's just not a well-known
18 problem on how to get your hands around it. But
19 when it comes to GPS, they're well aware. I'm
20 not sure how many strides we're making at this
21 point, though.

22 CHAIR SAADE: Sal.

1 MEMBER RASSELLO: I have a question
2 for Captain Viso and also for Dr. Qassim.
3 Related to fog, we are going around the
4 government for years now, and there is force that
5 operates with fogs, operates also to traffic, not
6 just passenger ships. One of the questions for
7 Captain Viso is what kind of infrastructures do
8 you foresee to mitigate this problem in
9 navigating with low visibility from the port?

10 CAPT VISO: Well, as I've indicated
11 today and always do when we get to this
12 discussion, I leave the operational part of how
13 it's going to happen in the current situation to
14 the local experts there, which I consider the
15 pilots in that port.

16 The infrastructure-wise, you know
17 again sort of what I touched on. It's going to
18 take a coordination between entities here. I
19 think radar is one of the things that is least
20 vulnerable, and operationally understood, and
21 could help the situation.

22 I think radar is one of the things

1 that is least vulnerable and operationally
2 understood and could help the situation. The
3 geographic layout is sometimes a problem, and you
4 know, just as quick example, the Mississippi
5 River is one thing. I've seen that operation
6 with cruise ships operating in restricted
7 visibility.

8 But in Tampa and in Houston, for
9 example, a very narrow channel, buoyed and the
10 shoreline is very far away. So radar navigation
11 is not precise enough to absolutely nail your
12 position where you are.

13 You can sort of go up there by Braille
14 to an extent. But you can do that, and I'm glad
15 somebody mentioned GPS vulnerability, because
16 everybody, especially in the marine navigation
17 side of it, is totally dependent on GPS at this
18 point, absolutely.

19 You really can't argue that, that
20 everybody, everything is tied to GPS, whether
21 it's AIS, whether it's ship positioning,
22 everything is tied to the GPS signal. The Coast

1 Guard authorization bill has directives to the
2 Coast Guard to act on eLoran. Whether that's
3 going to happen, we'll see. But at least at this
4 time.

5 So to be more precise, I think it's
6 going to take infrastructure. Radar would be the
7 obvious one and something more bulletproof than
8 what we have right now, because GPS is very
9 brittle in the sense that it's very vulnerable.
10 It doesn't take much to disrupt GPS, and
11 everything is linchpinned on GPS right now.

12 MEMBER RASSELLO: So connecting now,
13 Dr. Qassim said before about the technology on
14 the market now to be able to see to the
15 millimeters from the sky. Do you foresee any
16 kind of technology that can be applied on the
17 ships, to navigate into fogs that can overcome
18 the problem with GPS, because that would be only
19 visual, right, and also the, you know, the
20 reliability in navigating in fog with your
21 technology.

22 DR. ABDULLAH: Yeah. Unfortunately,

1 if it's really thick fog, LIDAR, it will affect
2 the laser of the LIDAR, you know. Like I
3 mentioned, the problem with the LIDAR, if we're
4 talking about the problem with GPS, is we rely on
5 the GPS. Without the GPS and location and geo-
6 location, we cannot get data from the LIDAR
7 itself.

8 So the LIDAR will probably in bad
9 weather, it won't be a good solution definitely.
10 I mean your option here is really the LIDAR, for
11 example you know. But for the navigation, for
12 the former discussion, I think -- I mean taking
13 GPS into consideration as the way we navigate, I
14 think the GIS geospatial, you know, Geographic
15 Information System for the ports, you know.

16 A smart geodatabase now. It could be
17 the way. It will be like driving your car now on
18 Google Earth or Google Map, for example. But
19 that's really the way to do it now. I mean if
20 you have a good GPS in the boat, and you have all
21 them for structured map to an accurate
22 geodatabase, where we know every coordinate

1 within centimeter, that you can navigate clearly
2 using because the map should show you how far you
3 are from any wall or corner within a few
4 centimeters.

5 I mean without having sensors, because
6 if you look at the autonomous car now, they think
7 about the sensor, you know, the LIDAR and
8 infrastructure sensor to feed back. But I think
9 we have a solution with a GIS database, where you
10 map it once and then it can be loaded to all the
11 boats, and they know exactly where every hard
12 object in the port, you know where within a few
13 centimeters.

14 MEMBER RASSELLO: And underway.

15 DR. ABDULLAH: Under what?

16 MEMBER RASSELLO: And also underway.

17 DR. ABDULLAH: Yeah. Oh yeah, yeah,
18 definitely, yeah. That's the way you need to do
19 it, the smart way.

20 MEMBER KELLY: We're going to do our
21 best to try to stay on time. We've got about
22 three minutes left. Maybe one more quick

1 question. Anybody have one?

2 CHAIR SAADE: Gary, go ahead.

3 MEMBER THOMPSON: Yeah. The Captain
4 already kind of covered. I was going to ask the
5 Coast Guard this morning what the status of our
6 backup GPS plan was, but we ran out of time. But
7 you're right. We need to -- this country needs
8 to realize that GPS is vulnerable and seriously
9 look at a backup plan for GPS.

10 DR. ABDULLAH: Can I just have a
11 comment, I mean if there is time, or no time?

12 MEMBER KELLY: Yeah sure.

13 DR. ABDULLAH: I just want to recap.
14 I finished two minutes early, so I want to
15 comment. I mean, I mean you guys, you should be
16 proud of what NOAA in general, NOS, the Office of
17 Coastal Services. I mean for us, the way we see
18 it as a government at this space, you know, as
19 best performing. I mean this is not only for the
20 services they provide, you know. I'm dealing a
21 lot with NGS and Juliana.

22 I mean the quality of people we're

1 dealing with, the scientific breadth they have,
2 whether Rachel, whether Drew, whether Mike, you
3 know, I mean they have the right formula for us.
4 So the services done by NOAA and NOAA offices is
5 just amazing.

6 I mean I don't think anybody replace
7 it. Private's not going to be able to match it
8 or do it, and we have a critical list, but that's
9 just for improving the work so we move forward.

10 So we really like just to say thank
11 you for all that you do and give them the support
12 they need as much as you can. Ask for funding,
13 because this is not a waste of taxpayer. This is
14 the right use for it. Thank you.

15 CHAIR SAADE: Well said.

16 MEMBER KELLY: We couldn't find any
17 better way to close than that.

18 CHAIR SAADE: I agree.

19 MEMBER HALL: Can I just have thirty
20 seconds?

21 MEMBER KELLY: Thirty seconds.

22 CHAIR SAADE: You're going to steal

1 that great closing.

2 MEMBER HALL: I am, because I agree
3 with you. But I also want to thank the panel.
4 But I want to give AAPA some credit because I did
5 not just a second ago, and I think it's really
6 important. When it comes to cybersecurity, they
7 are the most advanced in the maritime. Working
8 with their members, they've got one of the best
9 experts in April Danos from Port Fourchon.

10 So I don't want to ignore that people
11 are -- and it's coming from industry, not from
12 government in that case. But I'm sorry to take
13 your thunder. I do appreciate the comments.
14 We've worked, I've been on the panel for four
15 years now and as I see here, that we'd like the
16 icing on the cake, but we'd like the cake because
17 cake's good. Thanks.

18 MEMBER KELLY: I like Qassim's ending
19 better, but you know. That's okay. So with
20 that, I'd like to just thank all of the members
21 of our panel. Did a great job and also to
22 Captain Jim and Captain McIntyre, who helped to

1 put this all together. Really, I think it shows
2 the value of the services that NOAA is producing.

3 There's always room for improvement,
4 but it is appreciated and it's a well-done job,
5 and we hope to continue to build on improvements.
6 So with that, we'll close. Thank you.

7 (Applause.)

8 DR. ABDULLAH: It's nice to meet you.
9 Good job guys.

10 CHAIR SAADE: Okay, break time.
11 We'll get back here in about 15 minutes. Thanks
12 everyone.

13 (Whereupon, the above-entitled matter
14 went off the record at 3:00 p.m. and resumed at
15 3:18 p.m.)

16 CHAIR SAADE: So I'm going to stand
17 up here because at this time, it's public comment
18 period in the room and on the webinar, and I just
19 didn't want my back to all you folks that are
20 going to be commenting. So who's first?

21 Don't be shy. Go ahead. We have to
22 get you a mic. Hold on.

1 Before I hand off the mic, I've got a
2 couple of quick announcements. Bill Hanson and
3 Helen Brohl are both with us right now, both
4 former Chair/Co-Chairs. So it's nice to have you
5 guys visiting with us here.

6 (Applause.)

7 CHAIR SAADE: Go ahead, and if you'd
8 introduce yourself please.

9 MR. BARLOW: Good afternoon. My
10 name's Roger Barlow. I'm with the U.S.
11 Geological Survey, National Geospatial Program.
12 We are the topographic mapping portion of USGS.
13 A topic I want to address this afternoon is large
14 scale shoreline mapping, which dovetails with the
15 previous conversation.

16 Current mapping practice with USGS is
17 to display shoreline with our U.S. topo product
18 at the 1-to-24,000 scale, and the typical scale
19 at the high end of depiction for NOAA charts is
20 1-to-20,000 scale. I'm talking about a scale
21 commensurate with 1-to-2,400 scale.

22 Lidar's capable of producing data at

1 1 to 1,200 scale. We are producing about \$30
2 million of LIDAR nationwide a year in topographic
3 LIDAR through the 3D Elevation Program. NOAA's
4 collecting topobathymetric data in a number of
5 areas and JALBTCX is collecting topobathymetric
6 data in a counter-clockwise fashion around the
7 country. Last summer, they collected the
8 Atlantic coast ocean-facing.

9 So there's a lot of data out there,
10 and I am interested because of a number of use
11 cases, to begin to show shoreline at a much
12 larger scale. So it becomes relevant to a number
13 of new users that aren't able to key into the
14 smaller scales of 1-to-24 and 1-to-20,000 scale.
15 So the number of use cases I'm going to go
16 through now, just to give you a brief idea of who
17 those users might be.

18 The first group would be
19 infrastructure and stormwater. So I'm working on
20 a project right now which will be delivered in
21 just a couple of days, where the D.C. stormwater
22 network is going to be into the National

1 Hydrographic Dataset.

2 That's important because where does
3 stormwater go? Well, it goes into water that
4 (microphone disruption). So in this case, the
5 Potomac and Anacostia Rivers. So it's important
6 for them -- I'm sorry. Thank you. So it's
7 important to understand where shorelines are in
8 terms of the zero contour, and how that relates
9 as shoreline changes, sea level changes to where
10 the outfalls are into the water. Other
11 infrastructural items of course are
12 transportation networks, mass transit tunnels and
13 power stations, substations, all those types of
14 things that are located near water.

15 It's really important to understand
16 where the shoreline is. That's not adequately
17 represented at 1-to-20,000 or 1-to-24,000 scale.

18 Another issue that -- use case that
19 requires public safety and emergency response is
20 down at the local level, they need that accurate
21 larger-scale shoreline data.

22 Integration with parcel data is part

1 of that, so that landowners, individual
2 landowners can understand where the shoreline is
3 and how the inundation modeling might affect them
4 based on short-term events, in particular storms,
5 but also in the longer term sea level rise
6 scenarios.

7 So that also impacts recreational
8 users for water access such as boats and kayaks
9 and canoes and such.

10 Regulatory functions also require a
11 larger scale shoreline. In Maryland, you have
12 the critical area. You also have living
13 resources such as shellfish and submerged aquatic
14 vegetation, and the relationship to shoreline is
15 very important there for regulatory purposes.

16 And let's see. Finally, what's good
17 about large scale data is that it can be
18 generalized and brought down to the scale that
19 current charting is used at. You can't go the
20 other way in cartography. You can't take small
21 scale data and make it large scale and make it
22 work. But you can take large scale data and turn

1 it into the type of small scale data. So it
2 would have that type of utility to use for other
3 charting purposes as well.

4 In my estimation, the first step is to
5 convene a group of mapping folks, certainly part
6 of it would be NOAA and USGS, and talk about
7 standards, what type of standards would be needed
8 to generate a shoreline at that scale, how would
9 it be done. The process is currently we can do
10 that. We have the data. We have people. What
11 we don't have is funding.

12 We need to talk about acceptable
13 processes for the types of data that are being
14 used, both topographic, tide-coordinated LIDAR as
15 well as topobathymetric LIDAR. We certainly have
16 VDatum and we have sample specifications that
17 people have generated large scale shoreline for.

18 And then we would talk about entering
19 this data into the Continuously Updated Shoreline
20 Product, which NOAA hosts, so that it would be a
21 national asset to be used by states and
22 localities and the federal government. That's

1 what I have.

2 CHAIR SAADE: Any other questions or
3 comments from anyone, or from online?

4 MS. DENTLER: We have a comment from
5 someone online that I need to figure out, because
6 he said he sent it to the Hydroservices Panel on
7 Monday.

8 We will get to that public comment
9 later, maybe tomorrow, or in a few minutes. Does
10 anybody else?

11 MS. MERSFELDER-LEWIS: I hope that
12 there's more comments from the people in the
13 audience. If anybody would like to make a
14 comment, we'd really encourage it.

15 MR. DASLER: Hi, Jon Dasler from David
16 Evans and Associates. I guess just want to
17 direct it towards Juliana Blackwell. I mean your
18 comments on capacity in managing CORS, and I'm
19 curious to know if there's any thoughts or
20 efforts afoot on regional networks and some kind
21 of validation process that NGS might be.

22 I mean more and more, I think NGS

1 networks are being incorporated even by pilots in
2 some cases to that end. So even integrating some
3 of those stations even though managed by others,
4 in some cases they're being extended to offshore
5 and other areas to that end, and just being able
6 to integrate some of that data or have some kind
7 of validation from NGS relative to those regional
8 network sites.

9 I know some of them are cooperative,
10 others aren't. But and then second, I think is I
11 guess relative to the gentleman's comment from
12 USGS and use of VDatum in transforming, I think
13 the VDatum models and I think this was addressed
14 in some of the comments, of extending those
15 models further inshore.

16 So right now a lot of those were cut
17 off on the shorelines. Shorelines have changed.
18 When you're doing subaquatic vegetation, the
19 tidal datums are kind of important to that end.
20 Oftentimes, vessel-based LIDAR, they're working
21 inside the area where VDatum is acquired, but
22 collecting data where the lasers are scanning

1 beyond that, outside of VDatum.

2 So to transform those back and forth,
3 just looking at expanding VDatum further to shore
4 side, to account for some of that. Thank you.

5 CHAIR SAADE: Thanks, Jon. Admiral
6 Smith, do you have any comments you want to make
7 before we go into the next session?

8 RDML S. SMITH: Ed, I think we have
9 one more public comment from online.

10 MS. MERSFELDER-LEWIS: This is a long
11 comment. This is from William Nye. We'll enter
12 this into the record, and pardon me that it's not
13 on a slide. He said:

14 I did not see a presentation on the
15 National Charting Plan in the new ENC format.
16 This should be a subject of interest.

17 The NCP was published February 28th,
18 2017 by the Office of Coast Survey. One aspect
19 of the NCP relating to electronic navigation is
20 the new S-101 chart format. The phrase S-101 can
21 be found in the NCP, but there is little else.
22 Concerning what should be a very large and

1 significant subject and project, considering the
2 scope of what it touches.

3 I was told the existing S-57 format
4 will be phased out, but NOAA will produce charts
5 in both formats for a period of time. In my
6 opinion, the NCP is not a very transparent plan.
7 I requested clarification of the NCP,
8 specifically certain statements made by NOAA. I
9 received replies that required yet more
10 clarification. I still have not received fully
11 responsive answers, see OCS inquiries X and Y.

12 It is pointless to ask questions when
13 the result is a runaround. There were a series
14 of related inquiries. The first was submitted
15 about one year ago. Some of the information
16 provided looks like it should have been in the
17 NCP.

18 In the replies I received, NOAA stated
19 paper charts were derived from survey data, and
20 ENCs were in turn derived from paper charts.

21 This backwards, convoluted process was
22 done for years, and is only recently being

1 revised. A statement on this matter appears
2 missing from the PowerPoints. The NCP was
3 mentioned at NOAA Industry Day last October 2018.
4 A statement on how NOAA participates with
5 industry also may be missing.

6 A description, explanation of who did
7 what may be informative. The fact that NOAA
8 holds Industry Day presentations suggests there
9 is participation of some kind. The exact role
10 and influence of industry is not very
11 transparent, and may be channeled through non-
12 U.S. organizations, but likely had an effect on
13 the National Charting Plan. Sincerely, William
14 Nye.

15 RDML S. SMITH: Yeah, thank you Mr.
16 Nye, if you're online. This is Rear Admiral Shep
17 Smith, the Director of Coast Survey. I will
18 comment on the specific parts of your comment
19 that you mention here in your note. I don't have
20 the references to the inquiries that you
21 submitted. So I don't have those for reference.

22 But I did want to -- I did want to

1 pick up the question about S-101. S-101 for
2 everyone else is the sort of next generation ENC
3 chart format, replacing eventually S-57, which
4 was developed 25 years or so ago.

5 S-101 will have some benefits in the
6 richness of the information that is available,
7 some significant improvements to the ability to
8 display the information better, and it is a more
9 modern foundation that makes it easier upgrade,
10 to update the standard with changes in navigation
11 technology going forward.

12 That said, the S-101 format is just
13 really being issued now as a standard, and no
14 hydrographic office in the world yet has a firm,
15 fixed plan for transition from S-57 to S-101.
16 Given the nature of the global charting system,
17 the transition needs to be coordinated globally
18 because, because navigation systems need to have
19 compatible fuel globally.

20 That conversation in turn will be
21 coordinated by the International Maritime
22 Organization, IMO. So this -- it is a really

1 good question and a really -- and in fact is a
2 topic of international discussion. It is my
3 intent that NOAA will lead in this effort, this
4 international effort, but it is not ours to drive
5 it unilaterally. So thank you for your question
6 about S-101.

7 I will also say that there are, you
8 know, the National Charting Plan that we issued,
9 really wrote two years ago, issued a year and a
10 half or so ago, is incomplete in some ways, and
11 in fact does -- we have recognized a number of
12 ways that we would like to update it. We have
13 considered what the sort of update for that would
14 look like.

15 In particular, we have plans that
16 we've developed since that specifically outline a
17 more -- a more detailed set of ENC's for U.S.
18 waters, approximately quadrupling the coverage of
19 our ENC's or the amount of detail of our ENC's, on
20 average, one step larger in scale everywhere in
21 the United States.

22 That's quite a massive undertaking,

1 and so we're still working on an implementation
2 plan for that. But that's really the chart suite
3 that the United States deserves, and what the
4 United States maritime industry needs, from
5 recreational boating to commercial ports and
6 consistent coastal coverage.

7 I think with that -- oh, the role of
8 industry. It is a complicated answer. We have
9 contracts for hydrographic surveys, for
10 cartographic work, for professional services. We
11 buy a lot of commercial software for doing what
12 we do internally, and we leave parts of the
13 navigation services value chain to the private
14 sector to accomplish.

15 For instance, the printing and
16 distribution of paper charts and the creation of
17 navigation systems, even ENC distribution itself.
18 There's a value chain there. The navigation, the
19 Industry Day that you mentioned is one that we
20 host at the Annapolis Boat Show, that is really
21 designed to bring together the providers of
22 authoritative navigation services from NOAA, from

1 the Weather Service to charting and oceanography
2 and all the other components.

3 Together with navigation systems
4 providers, to be able to talk about how we
5 provide those services in a more efficient way.
6 We had a comment earlier from BoatUS about the
7 need to unify and improve our APIs, and that's
8 exactly the sort of insight that we get from
9 discussions with the navigation systems
10 providers.

11 I will close with that. Thank you Mr.
12 Nye for your comments.

13 CHAIR SAADE: Admiral, do you have
14 anything else you want to say before we move into
15 the next section? Okay. All right. Lynne, I'm
16 going to say that's the end of the public
17 comment, okay.

18 HSRP members Julie Thomas and Dave
19 Maune are up next. The HSRP is reviewing and
20 taking a deep dive on the priorities matrix.

21 This will be reviewed in coordination
22 with the non-voting NOS members and DFO. The

1 matrix will help guide the HSRP work and the
2 draft matrix of priorities in the HSRP materials
3 and on the web. So Julie and Dave, you can take
4 it away if you're ready.

5 MEMBER MAUNE: Okay. I'm going to
6 start off and Julie's going to follow. When I
7 first joined the HSRP four years ago, we really
8 left no record of what we had accomplished during
9 our HSRP meetings. So a colleague named Frank
10 Kudrna and I came up with the idea that we needed
11 to identify issues that needed to be addressed
12 somehow.

13 And what emerged out of that
14 discussion was that for a number of years, we
15 developed issue papers. We have now published 12
16 issue papers over the years on various subjects,
17 and right now we are reviewing a 13th one called
18 NOAA's National Ocean Service Role in the U.S.
19 Maritime Arctic.

20 It's in your folders as a draft issue
21 paper. It is not a replacement for the earlier
22 one on Charting the U.S. Maritime Arctic. It is

1 considered to be in addition to that one. So
2 just because they both say Arctic doesn't mean
3 one replaces the other one. We hope that
4 everybody -- well first of all, we've sent this
5 out for comment by a lot of people, but a lot of
6 you have not read it and seen it in its final
7 format.

8 So you now have it in your folder, and
9 we plan to vote on whether or not to accept this
10 issue paper later on this week during this
11 conference. So I encourage you to read that.

12 The next thing we did was we came up
13 with the different -- members threw out topics,
14 potential issues for us to address. Whether we
15 address them by issue papers or letters or
16 meetings or a different working groups or
17 whatever, it was left up to us. But we came up
18 with what we call our priorities matrix, and we
19 were trying to decide what were the highest,
20 highest priority issues that we needed to address
21 somehow.

22 When I sent these out for comments,

1 the one person that gave me a lot of comments was
2 Julie, who had also volunteered to be the co-
3 chair of this working group. So I'm going to --
4 yeah, she's taken on all kinds of things, been a
5 very productive new member. So Julie, I'm
6 passing this over to you to discuss.

7 CO-CHAIR THOMAS: Okay. We were
8 trying to get it on the screen because we didn't
9 have -- let's see here. Okay. So I think you
10 all have in your -- you got this priorities
11 matrix this morning, and so there's an advantage
12 to going over it here because what will come out
13 of this is a discussion of where we want to talk
14 about our priorities in the future, and also
15 maybe an issue paper or two that we can send to
16 the Administrator.

17 If it's not an issue paper, is it just
18 a topic that we want to include? So I actually
19 went through it again today and what I was going
20 to suggest was -- I think there's too many here.
21 I mean there's a lot of -- this is a lot of good
22 ideas, but I was going to try to suggest how we

1 approach it. If you look at number 11, it says
2 USACE/NOAA Partnership, and this I believe is the
3 issue where the Corps does sometimes not survey
4 to the resolution of NOAA. Kim no?

5 MEMBER HALL: I'm sorry, as the
6 originator of this --

7 CO-CHAIR THOMAS: Yeah.

8 MEMBER HALL: It was something we were
9 trying to build out. So I think that's what we
10 actually have to do, because this had originally
11 been a couple of years ago when I started it with
12 Dave, was throw ideas out there and go from it.
13 But we did not get a lot of context, and I
14 consistently asked for context from the group.

15 I'm sure it's great that we have Mr.
16 Hanson in the crowd, because this is one that's
17 close, near and dear to your heart. It is
18 several different issues, which is why we called
19 it partnerships. Whatever that would fall under,
20 whatever the current issue of the day with USACE
21 was.

22 Because what we had been harping on

1 back then was there was a partnership issue. Is
2 NOAA talking to ACE, is ACE talking to NOAA?
3 What's going on?

4 CO-CHAIR THOMAS: Okay. So it's not
5 just the survey.

6 MEMBER HALL: It is not, no.

7 CO-CHAIR THOMAS: Okay.

8 MEMBER HALL: And then, but just real
9 quick, and then Shep came back and they have a
10 great relationship now, and so what's next up?
11 So it's just been one of those ongoing keep track
12 of type of issues, and what we can or can't do
13 with it.

14 CO-CHAIR THOMAS: So is it something
15 that we can just mention in our letter to the
16 Administrator then, and not really --

17 MEMBER HALL: I think the question is
18 --

19 CO-CHAIR THOMAS: -- write a whole
20 issue paper on it.

21 MEMBER HALL: Oh, I don't think
22 there's an issue paper right now. But the

1 question is what is the current issue and is
2 there something that we can help Shep with as
3 he's managing that relationship? What is the
4 update of what's going on with that relationship,
5 just to keep us in the loop.

6 We don't want it to be removed from
7 the list, we want to make sure -- but it's not a
8 top priority yet, because there's not a current
9 issue.

10 CO-CHAIR THOMAS: Okay, so yeah
11 Admiral. You have some comments on that?

12 RDML S. SMITH: Yeah. I think I
13 appreciate the panel's pressure on us on this,
14 and it was for a while a useful irritant, to
15 allow us to have, every six months, have to
16 report back on progress here. And but I think we
17 have built a lot of relationships and we're
18 working through a fairly complicated interagency
19 process that's moving blisteringly fast for us.

20 And so I think that more heat right
21 now isn't necessarily helpful, and there's a lot
22 of light coming from a lot of places right now.

1 So I think that's good too. So I appreciate the
2 accountability, and I wouldn't want you to forget
3 that this is important. But I don't know that an
4 action right now is necessary.

5 CO-CHAIR THOMAS: So is it something
6 that we should, we could mention in our letter to
7 the Administrator, that we are pleased with the
8 progress in the NOAA/Army Corps partnership?
9 Because you are doing --

10 RDML S. SMITH: One context might be
11 noting the success of the panel that we had, that
12 included senior Army Corps --

13 (Simultaneous speaking.)

14 CO-CHAIR THOMAS: Right. But it's
15 also, isn't it also like the Rick Brennan
16 presentation yesterday with the surveying and
17 multibeam, where some of the ports now are --
18 have multibeam? So it seems like there's a few
19 areas where the partnership has gotten better.

20 MEMBER HALL: But the other thing is
21 it doesn't necessarily -- just because it's on
22 this list didn't necessarily mean that it gets

1 mentioned.

2 CO-CHAIR THOMAS: No, I know. I'm
3 also starting a list for the letter, so that's
4 why I thought I'd just bring it up right now, to
5 see if there was a one line sentence we could put
6 in there, and just say we're pleased with the
7 partnership going forward or something. Okay.

8 MEMBER HALL: Sometimes we have
9 limited space, so.

10 CO-CHAIR THOMAS: All right. Then
11 let's skip over to number 18. This is the U.S.
12 Coast Guard and AIS bullet, and it seemed like
13 this was another one that's actually being
14 addressed right now. Admiral Gallaudet is
15 talking actively with the Coast Guard, and I'm
16 not sure that we need to either have an issue
17 paper or do anything with it right now.

18 MEMBER HALL: I think there's a good
19 mention for the letter.

20 CO-CHAIR THOMAS: For the letter,
21 okay. That's what I put it down as. Okay, yes.
22 Sean.

1 MR. EDWING: So I just wanted to
2 mention following the Juneau meeting, I met with
3 Mike Emerson. His people and my people met in
4 November, and they committed to, you know,
5 pursuing this.

6 Where we're at right now is they're
7 taking FY '19 to kind of do some cybersecurity
8 things they have to do, and kind of put together
9 their plan, and then they're going to start kind
10 of building it in '20 and delivering what they
11 call an initial operating capability in 2020.

12 And the Admiral is getting, you know,
13 regular -- both admirals are probably getting
14 regular updates from their liaisons. So their
15 eyes are on it. So I think this falls into the
16 same category as you know, it's fine to keep on
17 the list and kind of keep tracking. But at this
18 point --

19 CO-CHAIR THOMAS: Okay. So we can
20 just say that we're pleased with the progress and
21 whatever. So that's a mint. So the ones up here
22 in yellow, I actually had tagged as just as

1 subjects to mention, a one-liner in the letter.

2 So now going backwards, because now we
3 want to go to the top. So now I think we should
4 just start at the very top and, you know, and
5 kind of see what I've done. The very first one
6 is the autonomous vessel surveying. I know that
7 in New Orleans, that's going to be a topic. So
8 do you think we should kind of table that one
9 until after the New Orleans session or yes.

10 MEMBER DUFFY: I would say that makes
11 sense, and I did hit the mic to say something on
12 the NOAA partnership with the Corps. I think
13 maybe that too could be part of the meeting in
14 New Orleans. I think that's the right place for
15 it and their good relationships.

16 But I didn't want to delay the
17 discussion. We'll start to figure out New
18 Orleans next week.

19 CO-CHAIR THOMAS: Oh great. Okay, and
20 then so that one we're going to go -- okay.
21 Number two, this is the one that I had a
22 discussion with Ed and Rich over lunch, and I

1 changed substantially. So just kind of ignore
2 what's in number two. We were thinking about
3 changing it to relative sea level rise and high
4 tide flooding, yeah.

5 MEMBER HALL: Context again here. I
6 think we've got to make sure that we include
7 Larry Atkinson in that discussion.

8 CO-CHAIR THOMAS: Oh I know. But
9 Larry's sick right now so --

10 MEMBER HALL: No, I understand. But
11 changing it wholeheart.

12 CO-CHAIR THOMAS: He asked -- he
13 actually sent me a note, and he said Julie, if I
14 would wordsmith this better. So I am talking to
15 Larry.

16 MEMBER HALL: Well, I just want to
17 make sure because --

18 CO-CHAIR THOMAS: And we're not going
19 to do anything without running this by Larry.
20 Sorry Kim, I --

21 MEMBER HALL: No, it has changed over
22 time, but I just want to make sure we don't lose

1 track of what we initially, and it might be a
2 different subject that you're all talking about
3 that's related. Because we've taken it and had
4 two different subjects, put it together and now
5 we're talking about changing it again. So I just
6 -- context here.

7 CO-CHAIR THOMAS: Well, so what Larry
8 and I talked about is really fleshing this one
9 out a bit with Nicole's emphasis on sea level and
10 around the room it has come up in today's
11 discussion. I thought maybe this could turn into
12 an issue paper, and what I kind of fleshed out
13 with Rich and Ed at the lunchtime was what would
14 -- what would we really ask for if we were saying
15 that attention, you know, should continue for sea
16 level rise.

17 And it was number one, continue or
18 expand geodetic observations, continue or expand
19 long term observations, the climate and
20 statistical analysis tools that are being
21 developed through CO-OPS, to continue with those.
22 Model coupling I think is important here, and

1 then how do we -- when I was talking with Nicole,
2 she was saying well how do we get out to the
3 public and really get them to buy into the whole
4 sea level rise topic?

5 And so there are ways that NOAA, I
6 think the Administrator can advocate through CMTS
7 since all three of the agencies are represented,
8 and advisory committees, et cetera. So this is
9 open for discussion because I thought, out of all
10 of them this might be one.

11 Oh, and also what I was thinking was
12 artificial intelligence and big data are on here
13 as two separate issues, and actually there's
14 areas in sea level and high tide flooding that AI
15 and big data kind of can be used and overlap and
16 are part of the tools. So I thought we could
17 actually wrap those right into this.

18 Do you want them as a separate one?

19 MEMBER HALL: I think -- so I am all
20 for advancing this and getting better ideas of
21 what we want, because it's taken time.

22 CO-CHAIR THOMAS: Yeah.

1 MEMBER HALL: Each member has a kind
2 of pet issue on this sheet, and again it was me
3 trying to capture during a meeting, so I am happy
4 to have the conversation. I just know that
5 Lindsay Gee, who can't be here today, has some
6 really big ideas and I know Carol I think was AI,
7 that see too it makes sense sometimes to wrap
8 them into other issues. But some -- but to keep
9 it separate because AI is huge, big data's huge,
10 and so we don't want to lose track of what that
11 looks like.

12 I know, I thought that maybe Ed can
13 tell me, the Technology Working Group had started
14 to look at that, at big data at one point?

15 CHAIR SAADE: Yeah. I was just going
16 to say, personally I think there's relative sea
17 level rise, full stop, because that's also --

18 CO-CHAIR: And not include flooding?

19 CHAIR SAADE: Because that's also
20 going to be what Admiral Gallaudet referenced in
21 terms of the western Pacific and things that are
22 going in the Caribbean.

1 And then high tide and flooding, which
2 is what we were talking about earlier and what
3 we're going to be, I think, talking about later
4 this week, that's a different topic altogether.
5 I definitely think they're different than big
6 data and artificial intelligence.

7 CO-CHAIR THOMAS: Okay. The reason --
8 well, is Neeraj here? I listened to his webinar,
9 and he was talking about it a couple of days ago
10 and the modeling that he's doing is using some of
11 the AI in training the models for sea level.
12 That's why. It's not that I didn't want to also
13 address that.

14 But it seemed like in that NOAA, Coast
15 Survey, CO-OPS are developing tools that also
16 include this big data and some of AI components.
17 So whether or not we mention them here too.

18 CHAIR SAADE: Can I make a suggestion
19 that we just go through it real quickly?

20 CO-CHAIR THOMAS: Okay.

21 CHAIR SAADE: And see what's on
22 there, find out if there's any redundancies and

1 find out if there's anything that we -- with a
2 very, very brief discussion, if want to get rid
3 of. Because if it turns out to be that there's
4 22 and we all think they're great, then there's
5 22 and we all think they're great.

6 CO-CHAIR THOMAS: Right, and then we
7 prioritize them --

8 CHAIR SAADE: Then we can prioritize
9 them later.

10 MEMBER HALL: Yeah. I think the point
11 of this too is to start the conversations,
12 because again I think we need more information,
13 because you only have what's on the sheet. I
14 have what I remember from the meetings.

15 CO-CHAIR THOMAS: I have -- that's why
16 --

17 MEMBER HALL: And so it's problematic,
18 I understand, especially for our handful of new
19 members who are trying to figure out what is all
20 this.

21 CO-CHAIR THOMAS: Okay. So we can --

22 MEMBER HALL: That's four

1 conversations.

2 CO-CHAIR THOMAS: Then number three,
3 marine and geospatial data infrastructure.

4 DR. MAYER: If wonder if there's some
5 redundancy with that and number nine, managing
6 data and databases. I think it depends on how
7 you look at it, but there certainly can be.

8 MEMBER HALL: We did do the issue
9 paper, and I guess it's just follow-up after
10 that. Is there something more that we want to
11 do? We signed that out in May didn't we?

12 CHAIR SAADE: So let's keep number
13 three in our minds until we get to number nine.

14 DR. MAYER: Yeah.

15 CO-CHAIR THOMAS: The next one was
16 stand-alone on education.

17 CHAIR SAADE: I personally think this
18 is a really good idea, and we still look around
19 the table and there's a lot of gray hairs around
20 here, me in particular. I think it would be
21 really good if we could start to get some younger
22 staff of various types getting involved into

1 this, as well as promoting hydrographic
2 education. It's not critical, I'll say that.
3 It's just an interesting idea.

4 MEMBER MAUNE: I'd be interested in
5 hearing from Andy and Larry on this subject. Do
6 you see the need for discussions by this group
7 concerning education?

8 DR. MAYER: Okay. That's a different
9 twist. Yeah, I certainly saw the need for
10 education.

11 MEMBER MAUNE: For us to identify an
12 issue paper or something.

13 DR. MAYER: No, no. Yeah, no, no, no.
14 It's a good question, and I don't think we're in
15 a crisis situation in any way. I think our lab
16 and a few others are training a cadre, or cohort,
17 of young folks, and I turn to the industrial
18 people in NOAA and ask if you think more needs to
19 be done.

20 I think we always need to be on top of
21 it and make sure that we continue to provide that
22 supply, and that they're educated appropriately.

1 But I'm not sure that it rises to the level of an
2 issue paper is my --

3 MEMBER HALL: And the paper does say
4 we want to invite more to be involved more with
5 students.

6 MEMBER MAUNE: Juliana Blackwell, I
7 have a question for you. How is the supply of
8 geodesists? Are you able to hire qualified
9 geodesists when you need them?

10 MS. BLACKWELL: That is a slightly
11 different story. But I will say, surprisingly,
12 we have brought a number of geodesists on board
13 in the last couple of years. I know that the
14 panel had supported trying to accelerate the
15 hiring of geodesists in the past, and even though
16 it takes a while to get vacancies announced and
17 get the selections, we've had some success.

18 However, that doesn't mean that they
19 are trained in the areas and the specifics of
20 what we need. So one of the things that we're
21 looking at internally is once we get people on
22 board, if they don't have the specific skill set

1 or if they need additional education, is offering
2 part-time or full-time university training to an
3 institute that they could then continue to
4 develop their knowledge on whatever aspect of
5 geodesy we most need.

6 So I think for the purposes of this
7 group, that within NGS, within our strategic plan
8 and what we're trying to do, I think we're doing
9 okay. So I would recommend that there doesn't
10 have to be an addition to geodesy, that we could
11 focus our attention on some other aspects rather
12 than the educational. I'm not saying that
13 there's hundreds of them knocking at our door,
14 but I do think that we're at an okay place right
15 now with --

16 MEMBER MAUNE: Does NGS have a program
17 to send some of your promising people for a
18 master's or Ph.D.s in geodesy?

19 MS. BLACKWELL: We are actually
20 working with one, with other federal agencies.
21 We work with NGA and we're looking at again
22 trying to send people in particular to The Ohio

1 State University. But that doesn't mean that
2 there aren't other universities that we would
3 consider for other types of geodetic programs or
4 geomatic programs.

5 CHAIR SAADE: So we have good
6 diversity on this Panel, except for the fact that
7 there's nobody young on this Panel. I know it
8 sounds -- no, no, no, no. I know it sounds a
9 little bit one-sided, but I can tell you from an
10 industry point of view it's a big serious issue.

11 I can tell you from an industry point
12 of view that we need about 25 hydrographers right
13 now, and we can't find any, okay. And also now
14 if that's the old necessity is the mother of
15 invention, we've been able to do hydrographic
16 LIDAR now, where we used to take 14 people into
17 the field, now we take two because we had to
18 figure it out, right?

19 So but I do think, I personally feel
20 it's important to start to get a younger crowd in
21 here to mix it up with us, because it's --
22 there's a lot of us that have too much experience

1 if you want to use that term, because we've all
2 seen it all together.

3 CO-CHAIR THOMAS: Okay. So we leave
4 education in there. We'll have to decide what we
5 want to do with it.

6 MEMBER HALL: I think that was the
7 point of what that last comment said. It wasn't
8 a matter of writing an issue paper, it wasn't a
9 matter of even a letter. It's that we include
10 them in our meetings and we make sure. I don't
11 think -- I know that we -- that's something Joyce
12 really harped on too and Susan Shingledecker and
13 past members.

14 I don't think we've figured out that
15 mechanism when we're in each place, how to
16 actually figure out who's who. Now New Orleans
17 should be pretty easy. There is a program down
18 there that is also a center of expertise, Center
19 of Excellence or something like that, not quite
20 up to UNH I guess.

21 That we should be able and we should
22 attack early and often, and the new Brian Connon

1 is a well-known person and easy enough to
2 convince him to come and bring his students. So
3 I think that's our aim for the next meeting in
4 New Orleans, is that we get at least one student
5 in that room.

6 CO-CHAIR THOMAS: All right. That can
7 be discussed, and then number five, enhanced
8 educational navigational assistance. I think
9 this is -- you've already done an issue paper on
10 this, so this is keeping track of that and going
11 forward.

12 Number six, this is incorporating non-
13 authoritative sources and I don't know, Rich. I
14 mean this tied to me into the tiered measurements
15 that are going on in Alaska. But once again, I
16 didn't have the background for putting these in
17 here. So maybe it was something else.

18 MEMBER HALL: I think Shep can discuss
19 crowdsourcing. That's something that we were
20 trying to do for a while, thinking about how do
21 you do that, how do you ensure that the data is
22 trustworthy and how do you put it in your charts

1 if it's not from a tier whatever, Zone of
2 Confidence.

3 RDML S. SMITH: Did you want me to
4 talk about that right now?

5 Well, it's kind of a complicated
6 discussion. There are a number of things going
7 on with crowdsourcing or partnerships with
8 existing crowdsourcing organizations, for
9 instance Olex, Navionics, Garmin. Both have,
10 both have some caches of data. There's an
11 International Hydrographic Organization
12 crowdsource bathymetric database and working
13 group hosted out of NOAA in Boulder and resourced
14 by my office.

15 You know, while we're still early days
16 with crowdsourcing, like other types of data it
17 doesn't have to go on the chart to be useful, it
18 may just be consistent with the chart, which is a
19 useful piece of information in and of itself. It
20 may show dynamic changes in an area, which is
21 useful in and of itself, even if it's not itself
22 conclusive.

1 So just framing that out, that's how
2 we're thinking about it to start with. Now it
3 may in fact be the best available data, and in
4 some cases both we and the Canadians have used,
5 you know, crowdsourced data. If you look at our
6 charts, you will see REP next to a lot of things,
7 including most sunken vessels along the coast.
8 That is crowdsourced data, right?

9 We've been doing this for, you know,
10 since Columbus. So this is not new. We have
11 ways of handling this and we do. So the question
12 is what level of awareness does the panel want to
13 be incorporated in some of these thoughts and
14 discussions and there's an international angle to
15 it which is very political, and there's an angle
16 with Seabed 2030, which is a different use
17 entirely of the bathymetric data.

18 There's a lot to talk about. If the
19 panel wants to be sort of read into those
20 discussions, we're happy to make that a topic
21 going forward. I guess that's the question is
22 what the panel wants, how the panel wants to be

1 involved.

2 CO-CHAIR THOMAS: Okay, and this is
3 really focused on the bathymetry then,
4 crowdsourcing, non-authoritative. So and this,
5 these are really issue papers to advise the
6 Administrator. So it's really how --

7 MEMBER HALL: None of this was ever
8 related specifically to issue papers.

9 CO-CHAIR THOMAS: Or comments.

10 MEMBER HALL: It was, it wasn't even
11 comments. It was for us to decide. So we did
12 first what issues are we interested in, how we
13 want to prioritize then what do we want to do
14 next? And so some of it was we want to learn
15 more. We want NOAA to come to the next meeting
16 or have an off, off the public record.

17 Not off the public record, but off-
18 meeting presentation or webinar. There were
19 about five different options in the Survey Monkey
20 that we had originally used. So, first, what do
21 you care about? Second, okay you care about
22 those issues, what do you want to do? Some

1 really didn't -- and we realized didn't rise to
2 the level of an issue paper.

3 Issue papers are an involved process,
4 as you know, and should be used when we really
5 need to. If it needs to be mentioned to the
6 Administrator, I don't think it does now. I
7 think these are also issues we're tracking and we
8 don't want to lose track of because things are
9 happening. IHO is happening, others are
10 happening, and maybe right now at this meeting we
11 have nothing.

12 But do we want to know more? Do we
13 need to know more or are we just going to table
14 it for now? And tabling is okay too. So that
15 was what really the gist, especially for the new
16 members. The genesis of this was we'd go to a
17 meeting, we'd have really great ideas and then,
18 we'd go to a meeting, we'd have really great
19 ideas, and then right, we'd go to a meeting and
20 have really great ideas.

21 So how do we keep track of those? How
22 do we do something with it or decide not to, and

1 it's okay not to. So I think what that, that's
2 where I tried to capture kind of current-future
3 what are we thinking? Okay, we wrote an issue
4 paper. We'll leave that one alone for a while.
5 That doesn't mean that things don't change and we
6 might not want to update the issue paper or write
7 a new one related to the same issue.

8 Or we say you know what? That one's
9 taken its course and we don't, we're not really
10 paying attention to it because it's kind of an
11 issue that's overcome by events. So that's
12 really, I think, these were -- and I want to make
13 sure it really isn't just for an issue paper. It
14 was just a whole gamut of ways we can learn more,
15 because some of us are dumb on the issues or not
16 quite as up to date as some of our other members.

17 And so it would be really nice, hey
18 somebody keeps talking about education. What is
19 the problem and what is HSRP's agreement to do
20 that? Probably not much, probably not an issue
21 paper. But again, if we can include people, get
22 them excited about what hydrographic services for

1 you is and what we do, and that it's part of what
2 they do, that's great.

3 So some of them are just little wins,
4 and some are the bigger issues.

5 CO-CHAIR THOMAS: Okay. So number
6 six. We're on seven? Does that -- did you have a
7 question, Ed?

8 MEMBER PAGE: Yeah. I just want to
9 add, I'm not really sure the problem is like I
10 assume we wanted to do crowdsourcing because we
11 don't have adequate surveying, and here's another
12 opportunity to get that done. So I guess the
13 first we have to get the problem statement. Like
14 where do we not have this? Where do we have a
15 problem that NOAA doesn't have the resources to
16 provide the charting necessary?

17 I mean we had that thing and the
18 situation in the rivers and up in the Arctic,
19 where they're very dynamic and there's silting
20 and whatever and there's very little traffic.
21 But in any major navigational channel, I'm sure
22 NOAA's all over it as the Corps of Engineers is

1 all over it.

2 And so I guess if we really want to go
3 down this path, I think we need to identify
4 where's the problem and we need the -- that
5 crowdsourcing may be a solution, and so -- and
6 then if we think -- then we can start going down
7 that path I suppose, so.

8 (Simultaneous speaking.)

9 MEMBER HALL: I agree, yeah. No, and
10 I completely agree Julie. You must be in the
11 dark on this, right, because there's not a lot of
12 information, and part of it for me was I'm not
13 always smart on the issue. I hear somebody say
14 it, and my job was to grab an idea.

15 CO-CHAIR THOMAS: No, no, it's great,
16 I think, for this kind of --

17 (Simultaneous speaking.)

18 MEMBER HALL: So yeah. But I think it
19 would be great for members around the table, this
20 shouldn't be your job to try to define.

21 CO-CHAIR THOMAS: Right.

22 MEMBER HALL: This shouldn't be Dave's

1 job to define. It should be our as members. So
2 if it's your idea, you get to give a little bit
3 more data. It was like pulling teeth to get
4 that, so if you have good idea, you've got be
5 willing to give us the full good idea, and so
6 that every member kind of knows when they look at
7 it.

8 Because I remember some of it, I don't
9 remember all of it. It's not my area of
10 expertise or even that I know anything to do
11 about. So I think that's one thing we need to
12 ask the members to do, is to help you define
13 those. What does it actually mean, what does it
14 look like, what's the problem.

15 And if it really isn't a problem,
16 let's take it off. If nobody around this table
17 or Anne or Larry or Lindsay who aren't here can't
18 offer more, then we need to -- you're right, we
19 need to cull, because there's a lot on this and
20 we're not going to get to it all.

21 MEMBER MAUNE: And I'm always looking
22 for a champion who's willing to step up to the

1 plate and say, this is an issue that I feel
2 strongly about, and I'm willing to start drafting
3 something to identify the problem and what the
4 alternatives are, that sort of thing.

5 So if you feel strongly about
6 something, please raise your hand and let Julie
7 and me know that you might be willing to start
8 drafting something.

9 MEMBER PAGE: I'm not raising my hand,
10 by the way. That's the only reason I'm getting
11 on the mic. My hand's not up, though. So no, I
12 just recall in the last meeting in Florida, there
13 was a discussion from the recreational boater
14 about the charting for recreational boats on not
15 normally high priority waterways, and how they're
16 crowdsourcing information and what have you, how
17 they're doing it. So that's -- I think that was
18 kind of how some of this triggered.

19 All that's interesting, that's
20 something that NOAA can't deal with all the
21 recreational boating where people are going in
22 very, very shallow water and there may be other

1 ways of getting it. So I think that's how that
2 kind of -- that's what my memory of what this
3 crowdsourcing, which is intriguing but I didn't
4 see it as a real pressing issue, even though I'm
5 a recreational boater.

6 But in any case I agree, that maybe we
7 -- if someone wants to champion, which is not me,
8 and we get smart on it, then fine. Otherwise, I
9 don't think it's a big, pressing issue.

10 MEMBER HALL: But I do think it's
11 really important, and Dave we'll probably get in
12 an argument about this, is I think we as a group
13 have to decide that it's issue paper worthy. If
14 there's a champion who wants to champion and
15 says, I want to write this and this is why.

16 Because doing issue papers is not a
17 quick process on this panel. It is not an easy
18 process, and a lot of folks have full-time jobs.
19 So we have to pick and choose when we're going to
20 do them.

21 As the person who has been the main
22 writer of the bottom lines upfront of these

1 papers and gets to be the main editor for the
2 last three years, I really ask that we make sure
3 we really want it and we really as a group decide
4 that.

5 If the champion can come in and tell
6 us why they do it and why they really think it's
7 important, then of course. But I think just to
8 have issue paper for issue paper's sake, it
9 becomes very problematic. If we then get
10 something from Rick or Juliana or Shep that we
11 need to review, what takes precedence.

12 But I will say that the issue paper
13 process is not a quick one or easy one. There's
14 a lot of, when you have to do it by group
15 agreement on a paper, and people's different
16 choices of words. It becomes a lot of work. So
17 just keep that in mind, especially for our new
18 members. Issue papers are not just a quick done.

19 MEMBER MAUNE: And I would add that
20 the reason we have this matrix configured with
21 all these columns on the right is because people
22 were to vote on their three to five highest

1 priority issues that they thought might be worthy
2 of doing something like that. So if it doesn't
3 get very many votes, and as you may recall, I
4 briefed in Juneau that of all these topics, only
5 three of them and the majority of the members
6 vote in favor of it.

7 MEMBER HALL: Right, but just because
8 it gets voted for, doesn't mean it's an issue
9 paper that we're asking for. Because what it
10 might be is there's an issue here. So we wanted
11 more information on what satellite-derived
12 bathymetry was.

13 We weren't going to write a paper on
14 it, but we had a panelist who could give us a
15 presentation and gave us a wonderful
16 presentation. So that when we're hearing people
17 talking about it --

18 CHAIR SAADE: Let's -- I'm sorry, I'm
19 going to interrupt this. Let's get through this.
20 We're only on number six or seven.

21 CO-CHAIR THOMAS: Okay. Let's move on
22 to number seven.

1 CHAIR SAADE: So we need to move
2 through it. Let's see what it is and then we'll
3 come back to it as time permits over the next two
4 days.

5 CO-CHAIR THOMAS: Right, okay. So
6 disaster response. There's been lots of comments
7 about disaster response. I think right now we
8 just want to know do we want to keep this, do we
9 want to take it off. Yes, because we are going
10 to be addressing that for sure next time.

11 MEMBER DUFFY: Yes. So I think I
12 would like to see this stay on the list.

13 CO-CHAIR THOMAS: Okay, and maybe we
14 do it, it would be my -- be a good issue paper
15 after New Orleans.

16 Okay, all right. Arctic charting, Ed.
17 You want to talk about that?

18 MEMBER PAGE: Yeah briefly. David
19 mentioned that I suggested maybe that was, could
20 be incorporated in other Arctic policy document,
21 and I'd love -- I'll defer to others on that.
22 But I said yes, but now I'm thinking about maybe

1 I shouldn't be so quick to say that.

2 The document we have right now,
3 position paper, goes in great detail and it's all
4 focused on charting. I've got another Arctic
5 policy paper that's coming up about challenges in
6 the Arctic, which have to do more with other
7 information like there's an ocean real time
8 system, oceanographic real time system used, and
9 AIS transmission of dynamic marine protected
10 areas and dynamic coast pilot and they were
11 trying with coast pilot. There were different
12 issues and I talked about charting also.

13 But they don't put enough emphasis in
14 the charting, so perhaps we'll just leave the
15 charting thing on. This document you have had,
16 which I think Lawson Brigham prepared, and it's a
17 very comprehensive, well-done document.

18 It gives more attention to charting
19 and just put this other document that I've been
20 preparing and to get rid of the charting that has
21 already been addressed, and just talk about the
22 other issues.

1 So on second thought I'm thinking this
2 document's a good one. Let's just leave it in
3 place, because they don't talk about a couple of
4 things about charting in the next document on
5 Arctic policy. So I'd say keep this one on hold.
6 It looks good, provide hopefully you know --

7 MEMBER MAUNE: But you don't want us
8 to vote on this tomorrow?

9 MEMBER PAGE: Well, we've got to
10 refine it. I think it's got some -- I don't
11 think it's, we got enough input it on this one to
12 vote on tomorrow. We'll see. I mean maybe -- I
13 think it needs some more work and the charting
14 one's fine. This other one probably needs some
15 more work and we'll see. But okay. That's my
16 position on that.

17 CO-CHAIR THOMAS: Okay. Number nine
18 is the big data one, managing big data sets, and
19 this includes AI also.

20 CHAIR SAADE: So I say, as Larry
21 pointed out, let's combine this with whatever
22 number the other one was.

1 MEMBER MAUNE: Three.

2 CHAIR SAADE: Number three.

3 CO-CHAIR THOMAS: Yeah, number three.

4 CHAIR SAADE: And we can refine it,
5 but it is going to be an issue that grows
6 exponentially every single year.

7 CO-CHAIR THOMAS: Okay. Tech
8 transfer, number ten.

9 CHAIR SAADE: Wait, he's got a
10 comment.

11 MR. BOLEDOVICH: Number three was the
12 issue that came up today about information
13 infrastructure being part of a national
14 investment in infrastructure, like the President
15 and Congress proposing a big infrastructure
16 initiative for the country. And to make sure
17 that it's not lost on people in addition to gray
18 infrastructure that was discussed this morning,
19 there's some emphasis on information
20 infrastructure as a policy issue.

21 This is about how we manage data and
22 that kind of stuff and IT. So they're two very

1 distinct issues I think, and one of them was more
2 of a policy issue. There might be, might be
3 something for you in that area, based on what the
4 conversation I heard this morning.

5 Say Admiral, we heard a lot about
6 information infrastructure and boy, if there is
7 some kind of an information infrastructure
8 initiative going on, this panel would support the
9 notion that these programs are an important and
10 key part of that, right? The geodetic
11 infrastructure, the tidal datum infrastructure,
12 that kind of stuff.

13 So I think they're very distinct,
14 they're very distinct issues. I don't think you
15 need an issue paper on infrastructure.

16 MEMBER HALL: But we already have one.

17 MR. BOLEDOVICH: Right. Well good,
18 absolutely that's right. But so it may be the
19 hot issue, it's the topic right now is that it's
20 in the news, it's in the press again as a
21 potential area, you know. The political politics
22 of it are that it's a potential area where this

1 administration may be able to work with the other
2 side of the aisle to get something through,
3 because it's an area that they both agree that
4 infrastructure is important.

5 Wouldn't it be a shame if such an
6 infrastructure of some, you know, a \$200 billion
7 infrastructure initiative over ten years left out
8 information infrastructure and data. That would
9 be a -- that would be a bad thing to have happen.
10 That's the discussion the panel has had in the
11 past, and so just to reemphasize.

12 And I think for that matter, this is
13 something you can relate to the Admiral certainly
14 most directly when you talk to him as well. But
15 that's, I think, the sentiment of the panel that
16 I've heard before and I'll leave that up to you
17 of course, is that boy, you know, we get a lot of
18 return on investment for a very small amount of
19 money from these programs, and they do a lot to
20 support not only information infrastructure but
21 providing information that anything that you're
22 going to physically build along the coast better

1 be based on a good geodetic and tidal datums,
2 right?

3 So if we're going to invest \$200
4 million in coastal infrastructure, physical stuff
5 for 200 billion, it had better be based on
6 something good and factual that comes out of
7 programs here. I think that was the idea.

8 CO-CHAIR THOMAS: Okay, number ten.
9 Tech transfer. Thanks, Glenn, for that comment.
10 Tech transfer. So this is really pushing,
11 pushing out to industry.

12 CHAIR SAADE: I have no doubt.

13 MEMBER HALL: I think we talked about
14 it at one of our last meetings.

15 CHAIR SAADE: I think we're fine.
16 We're going to talk about it tomorrow. I don't
17 know that it has to be on here, because we never
18 let it go anyway, so it's okay.

19 (Laughter.)

20 MEMBER HALL: Well, I think it's
21 something we keep track of for people who aren't
22 at the meetings.

1 CHAIR SAADE: I will volunteer this
2 one to take it off, so we can get something off
3 of there. But that doesn't mean we'll ever stop
4 talking about it, okay.

5 MEMBER HALL: Is it necessary to
6 remove things?

7 CHAIR SAADE: It's only necessary to
8 keep going.

9 CO-CHAIR THOMAS: Okay, number 11.
10 This is the core partnership, then. We kind of
11 decided that we were going to include a one-liner
12 in the letter to the Administrator. Number 12,
13 hardening of offshore observing sites. I just
14 thought this was really broad was my comment, and
15 I wasn't --

16 MEMBER HALL: So we ask Larry or
17 whoever brought it to give us more information.

18 CHAIR SAADE: This was Rich's, I
19 think.

20 MEMBER HALL: Was it Rich? No, I
21 think it was -- I think it was Larry Atkinson.

22 CO-CHAIR THOMAS: I mean, I couldn't

1 agree more that a lot of the offshore
2 instrumentation needs hardening, but --

3 MEMBER HALL: But this is the point
4 where we need members to come in and give us
5 context, because it's not my idea. It was
6 somebody else's, but it was something --

7 CO-CHAIR THOMAS: Okay, we'll move on.
8 We'll put Larry. Oh Larry or Rich, do you have
9 an idea about that? Okay.

10 MEMBER HALL: I think it came from
11 when we did our first survey, and people just put
12 in topics with no context. So again, I think we
13 just ask and if nobody else --

14 CO-CHAIR THOMAS: I'll send a note to
15 Larry. Number 13, public-private partnerships.
16 Russell Callender asked that we look at this at
17 the Miami meeting. Coordinate, summary of
18 identify examples and targets of evaluation. So
19 that's number 13. It sounds like it came from
20 Russell, which I think we all agreed public-
21 private partnerships are critical, yeah. I'm not
22 quite sure what we do with this here.

1 RDML S. SMITH: Let me just comment
2 real quick. So this was, you know, an
3 administration initiative, you know, a priority
4 at the beginning of this administration and their
5 description of the type of activity that would be
6 like this would be a service that had sort of
7 concentrated federal -- concentrated value
8 delivery, and therefore we could cost share with
9 the private sector that was getting value from
10 that. And we have an example of that which is
11 PORTS, which we all seem to dislike the cost
12 model for.

13 So it's just a little bit hard for
14 this panel to both promote this and take the one
15 shining example we have of it and say that we
16 don't like that model. So anyway --

17 MEMBER HALL: Can we ask Nicole to
18 redirect us?

19 RDML S. SMITH: Your panel. You can
20 decide whatever you want to do. It was a
21 suggestion. I don't think it -- I don't think it
22 has any lasting direction.

1 MR. BOLEDOVICH: I'll take it for
2 action, to check with NOS leadership and get back
3 to the panel.

4 CHAIR SAADE: I think yeah, I don't
5 think it needs to be on this list. We've done
6 our due diligence. We've responded to each
7 other. I think it's going to naturally go
8 whatever way it goes. It does not need to be
9 tracked or commented on or anything.

10 CO-CHAIR THOMAS: All right. Number
11 15. Sorry. You say that was a Lindsay one? Do
12 we want to shoot Lindsay an email? Somebody want
13 to send him an email or --

14 MEMBER HALL: Is he around?

15 CO-CHAIR THOMAS: I don't know. I
16 mean AI is being discussed in so many contexts,
17 through CO-OPS. I think through Coast Survey
18 they're using it. I think Neeraj is using AI and
19 training his models, so --

20 MEMBER HALL: I mean there's a reason
21 it says related specifically to disaster recovery
22 and I'm not sure why. So we did try to specify.

1 MEMBER THOMPSON: Yes, it's related
2 to disaster recovery. I know we're currently
3 doing a research project with AI related to
4 disaster recovery. So I think that's what it was
5 related to.

6 (Off mic comments.)

7 MEMBER THOMPSON: Yeah, yeah, yeah.

8 CO-CHAIR THOMAS: All right, so we're
9 leaving it on here. Hydrodynamic modeling and
10 validation, number 16. Yeah. Well, I think
11 that's wrong. My comment is wrong, because Rich
12 told me the total wash and that doesn't -- that
13 comes out. But -- yeah, take out all the red
14 there. But the need for data inputs to
15 hydrodynamic modeling. Well that's definitely
16 true but presentation at Juneau meeting,
17 discussion at Miami. Okay. I don't know about
18 that one. What was it?

19 CHAIR SAADE: Silence is okay.

20 CO-CHAIR THOMAS: 17, information
21 dissemination.

22 MEMBER PAGE: I'll just comment on

1 this briefly. When a BoatUS representative came,
2 they talked about the APIs and what information
3 is. So I don't know if this is a big issue, but
4 I guess, you know, I see this like this value
5 added. If NOAA provides this information and the
6 value added, BoatUS can put an apps tailored and
7 whatever.

8 I guess that would be one application.
9 I don't know if this is a real pressing issue or
10 whatever, but I'm thinking this example I just
11 presented a little while ago.

12 MEMBER HALL: We hear this all the
13 time. One-stop shopping, dashboard, consolidate.
14 I think we've heard that people are trying to do
15 it in some places. It's how do I get to it,
16 there's too many different websites. So we just
17 hear it consistently. Whether there's anything
18 we can do about it, whether just keep talking
19 about it, keep paying attention to it.

20 But specifically, that was -- it's not
21 so much that they don't have the data; it's how
22 you get it out and how do you make sure people

1 know where to get it and what to do with it, and
2 I think today we heard another example of it. We
3 want a dashboard and we want more APIs. Okay,
4 that's great and we put that in a letter.

5 CO-CHAIR THOMAS: Right.

6 RDML S. SMITH: But we -- just to
7 know, we do have activities in this that if the
8 panel wanted to hear about it, we could report
9 back.

10 CO-CHAIR THOMAS: Okay, good to know.
11 And by the way, Lynne said that number 16 with
12 the hydrodynamic modeling was really after the
13 presentation in Juneau that we -- and the panel
14 said we wanted to hear more about that. So I
15 think that that's true. I mean, we do always --

16 I don't know. To me that overlaps a
17 little bit with sea level and some of the other
18 discussions too. Okay, number 18, USGS and AIS.
19 This is --

20 CHAIR SAADE: The Coast Guard.

21 CO-CHAIR THOMAS: Yeah, I'm sorry,
22 Coast Guard, yeah. And --

1 MEMBER PAGE: I think we heard a lot
2 about that today, and I think we're good, right?
3 I mean we just talked about it here a little
4 while ago too.

5 CO-CHAIR THOMAS: Right. So that is
6 going to go probably into a letter, just say that
7 we're happy about the progress.

8 MEMBER PAGE: Yeah, a smiley face.

9 CO-CHAIR THOMAS: Okay, number 19,
10 survey fleet.

11 MEMBER MAUNE: We've had several issue
12 papers on that already.

13 MEMBER HALL: That was Joyce trying to
14 make sure that we kept it updated, if we needed
15 to. So it's just staying there.

16 CO-CHAIR THOMAS: Track.

17 MEMBER HALL: If we think that it's
18 something that we're going to talk about all the
19 time like transfer, tech transfer and we want to
20 get rid of it, not a problem. But it's something
21 that Joyce was going to -- championing the whole
22 time.

1 CO-CHAIR THOMAS: Track, okay.
2 Identify and quantify the benefits of NOAA's
3 Hydrographic Services. Well I think that's what
4 we definitely want to do big time. I'm not sure
5 --

6 MEMBER HALL: Looks like we'll have
7 something in 2020 to discuss.

8 CO-CHAIR THOMAS: Yeah.

9 MEMBER MAUNE: NGS has the ongoing 3D
10 Nation Requirements and Benefits Study going on,
11 which is supposedly going to document the
12 benefits of a lot of what they do. But I'm not
13 sure about the other two offices.

14 RDML S. SMITH: Yeah. Ashley has been
15 running, running herd on the bathymetric portion
16 of that 3D Nation. The questionnaires have gone
17 out. I think she leaned on many of you to help
18 provide input for the industries that you are
19 familiar with.

20 MEMBER MAUNE: Yes. It covers the
21 bathymetric part. I'm not sure about Rich's
22 part.

1 RDML S. SMITH: So we've done a number
2 of port economic benefit studies, but also under
3 precision navigation we're doing some -- there's
4 some economic study work going on there.

5 CO-CHAIR THOMAS: So maybe we can just
6 say that's in progress.

7 MEMBER HALL: Yeah. I think what --
8 she's asked people for information and just ask
9 her real quick, and then in 2020 when the final
10 report comes out, it's something that we could
11 help give feedback on.

12 CO-CHAIR THOMAS: Okay, number 21,
13 federal versus state licensing. Oh, I think this
14 is Gary. Take it out?

15 MEMBER HALL: We removed it, yeah, in
16 Juneau.

17 CO-CHAIR THOMAS: Okay, number 22,
18 NOAA's application. Oh, Ed Page, number 22.

19 MEMBER PAGE: That was my first
20 meeting. I didn't know better. I opened my
21 mouth. I'm smarter now.

22 (Laughter.)

1 MEMBER HALL: I made sure I put your
2 name in there.

3 MEMBER PAGE: Yeah, yeah, I know.
4 Well, and this is kind of back to this thing we
5 talked about before on sharing information. But
6 also I guess if it would be helpful, although it
7 sounds like you may have already tapped in this
8 issue, we keep talking about this dynamic
9 electronic Coast Pilot initiative that I know
10 Admiral, you're interested in it.

11 And if we could -- if that was
12 helpful, we can flesh it out and kind of identify
13 what that looks like and why we want to do it and
14 what the benefits would be realized, et cetera.
15 But we don't want to get to the point where --
16 we've already done this more or less, or we
17 finished it. It just hasn't been launched, so.

18 But I'd be willing to take that on,
19 but really predominantly on a focus of how do we
20 get some information out of a more dynamic
21 nature, and electronic Coast Pilot. That's not
22 just print it and then just constantly doing pen

1 and ink corrections or taping things in it or
2 what have you, but actually have an electronic
3 one.

4 So is that something -- I'm okay with
5 taking that out. If people think it's worth
6 pursuing.

7 It's machine and machine, but you
8 know, that's kind of like AIS and an information
9 receiver, and then back to a ship. The machines
10 are talking back and sending information back and
11 forth, and Internet things. It's just all the
12 other information like electronic Coast Pilot is
13 the Internet things.

14 It's out there on the Internet and
15 ships can bring it in or enter it to an AIS
16 transmitter to a vessel when it's relevant to
17 that particular vessel and transmit it over AIS.
18 So these are all new technologies, better
19 dissemination of data versus flipping through a
20 book.

21 RDML S. SMITH: I think there's a
22 useful thread to pull here and I'd be happy to

1 talk to you offline about how to refine this and
2 --

3 MEMBER PAGE: Yes sir, it sounds good.
4 I'm on it.

5 CO-CHAIR THOMAS: Okay, so Ed and the
6 Admiral for that one.

7 MEMBER PAGE: I won't volunteer
8 anything else.

9 CO-CHAIR THOMAS: 23, Chart of the
10 Future, supplementary navigation data management.
11 This was Lindsay and Ed Saade. There you go.

12 CHAIR SAADE: I have no memory of it.

13 DR. MAYER: I'll try one here, because
14 to me this is very closely tied to the precision
15 navigation effort that NOAA is doing. And I
16 think if we listened to the panel today, I think
17 this is still --

18 CO-CHAIR THOMAS: Relevant?

19 DR. MAYER: Very relevant, because
20 it's really what they were asking for.

21 CO-CHAIR THOMAS: Okay. We do not
22 have a precision nav bullet here.

1 DR. MAYER: Well, I think that -- let
2 the Admiral comment.

3 RDML S. SMITH: New Orleans, that's
4 right.

5 DR. MAYER: Yeah.

6 CO-CHAIR THOMAS: Go ahead.

7 RDML S. SMITH: Yeah. It's a focus of
8 our meeting in New Orleans, and both Integrated
9 Dissemination and high definition bathymetry for
10 navigation are a core part of that precision
11 navigation.

12 CO-CHAIR THOMAS: So can I just put
13 New Orleans by this one then? Okay, okay. That's
14 it. So I think what I'm going to do, and if it's
15 -- I mean Dave, if it's okay with you, I'll
16 modify this online and I'm going to put if it's
17 for tabled until New Orleans, I'll put that. If
18 it's decided that we're going to table it for our
19 letter, I'll do that, and then some of them are
20 just in progress too and some of them may have
21 specifics to go back to Larry or Glenn.

22 I'll just put our comments in one of

1 the columns, and then tomorrow when we're voting
2 we can decide what to vote on.

3 MEMBER MAUNE: Did you, did you want
4 to see us voting on these things, what we
5 consider important and not?

6 CO-CHAIR THOMAS: Not today anyway.

7 MEMBER MAUNE: Any time in the future?

8 CO-CHAIR THOMAS: What I think, should
9 we try to vote, Lynne, tomorrow?

10 MS. MERSFELDER-LEWIS: I think on
11 Thursday.

12 CO-CHAIR THOMAS: Or Thursday, okay.
13 So let me regroup this. It will get handed out
14 again tomorrow if possible, or we can send it
15 electronically.

16 I'm just going to group it by the ones
17 that we should vote on, because some of these I
18 don't think we're going to vote on. If it's
19 tabled until New Orleans, if we have to ask Larry
20 and Lindsay or something, we're not going to vote
21 on it.

22 MEMBER HALL: I guess I still think

1 that it's prioritization, because some things,
2 like, we can have all these great things that we
3 want to do something with. We need to figure out
4 what our top five we want to do something about.
5 So I think -- but I agree, there's kind of
6 separate columns here.

7 But if we don't have more information
8 from Lindsay or Larry, we have a hard time saying
9 we want to do something more or not in the time
10 frame. We know what we want for NOLA, we know
11 what we're doing now. But we don't know coming
12 up in the --

13 CO-CHAIR THOMAS: Could we vote on
14 what we have, the ones that we have and then
15 those that are going out for questions, then we
16 can -- it goes back into the pool?

17 MEMBER HALL: You could, but then what
18 does a vote mean if all of the sudden something
19 else becomes number one because of that, because
20 we have more information? Sorry, I'm not trying
21 to make it more complicated, but I know that this
22 is one of the things we were trying to do, is to

1 help us lead through the time between meetings.

2 What are we going to talk about, what
3 kind of presentations do we want from NOAA. But
4 really because there are 20-some things on here,
5 we needed to know what the group, not what one
6 individual was interested in, what the group as a
7 whole wanted to hear more about and how we move
8 forward. It was kind of an opportunity to get,
9 yeah.

10 CO-CHAIR THOMAS: No, no, I get that.
11 I would vote on Thursday and just see where we
12 are as a group.

13 MEMBER HALL: Yeah, and hopefully
14 we'll have more from Larry or Lindsay.

15 CO-CHAIR THOMAS: If some of them fall
16 off the table completely then, you know, I don't
17 think Lindsay or Larry's or Anne's vote --

18 MEMBER HALL: I think you would still
19 -- but I still think you would leave the Lindsay
20 and Larry ones in to vote on.

21 CO-CHAIR THOMAS: Oh yeah. Oh no,
22 definitely.

1 MEMBER HALL: And say hey but we still
2 want -- and what our next move is we want more
3 information.

4 CO-CHAIR THOMAS: Okay.

5 MEMBER MAUNE: By the way as a
6 question of policy, right now I have the voting
7 members on this list with your first and second
8 initials, and I also have Andy Armstrong in here,
9 but I don't have Larry on there, and I don't have
10 the other non-voting members.

11 CO-CHAIR THOMAS: But he's not a
12 voting.

13 MEMBER MAUNE: Should the non-voting
14 member -- are you a non-voting member? And
15 you're a non-voting member, and you are.

16 So the only one I have on there right
17 now is Andy. I need to be consistent. Take them
18 all off or leave them on?

19 CO-CHAIR THOMAS: Take them all off.

20 If they're non-voting members, they
21 shouldn't vote.

22 MEMBER HALL: No. The non-voting

1 members, what happened is we would go back to the
2 offices and say what can you give us, what more
3 information. But no, it's for the panel, the
4 voting panelists to do.

5 MEMBER MAUNE: So then I'll remove AA
6 off the list.

7 CO-CHAIR THOMAS: Virginia just did
8 it.

9 MEMBER MAUNE: Everybody else should
10 recognize your initials there.

11 CHAIR SAADE: So I think Kim hit on
12 something. I think the vote, the first vote we
13 should take of what's ever on the list is what
14 are the top five things we want to learn more
15 about, okay. That's nice and uncontroversial,
16 and it's educational and it's stimulating. So
17 let's try and do that on Thursday, okay.

18 CHAIR SAADE: Now in the meantime,
19 we're going to end this discussion and do the
20 wrap-up. So Sal, you want to go first, the wrap-
21 up of today's events? You need your mic.

22 MEMBER RASSELLO: I think it was very

1 constructive from the view of the panel members,
2 also from the rest of the NOAA that presented.
3 Something, you know, is keeping repeating is this
4 issues with PORTS. But we need to do something
5 to keep things moving. I don't know if it's
6 coordination of ACE infrastructures.

7 I still think we keep on repeating
8 things, but we're going to get somewhere some
9 time, especially with this PORTS, where -- my
10 problem is and precise navigation is really
11 something that is getting into a war, because
12 ships are getting bigger and that's everything.

13 What we heard about all today is ships
14 are big, ports are the same. So where are we
15 going? Are we going to invest in the ports or
16 invest in coordination between that? We have
17 everything. We have the Corps of Engineers, we
18 have NOAA, we have Coast Guard. Everybody was
19 here.

20 CHAIR SAADE: So let me remind
21 everybody. We're going to start tomorrow with
22 another recap, so let's go through today's

1 summary like at least kind of points and capture
2 them, and then we'll -- whatever you sleep on
3 tonight and wanted to stimulate or get everybody
4 kicked off with tomorrow, that's okay. So you
5 get plenty of opportunity to comment. Rich.

6 MR. EDWING: Sal just said every other
7 word I was going to say, and I'll save the other
8 half for tomorrow morning.

9 CHAIR SAADE: Okay.

10 MR. EDWING: No, actually I thought
11 that the panel presentations were really, really
12 excellent and actually I thought that the
13 national perspective was really great, because
14 you know we hear a lot of good things in the
15 regional meetings.

16 But you know, you hear something and
17 it's hard to know how much effort maybe you
18 should put into it, because it just may be kind
19 of a local issue, right. But we heard a lot of
20 really good I think recommendations, and I would
21 just say I was -- again, I was kind of blown away
22 by Dr. Abdullah's recommendations.

1 He kind of had slide after slide of
2 very detailed and I thought very on target
3 recommendations for us. It really again, I
4 think, reinforced a lot of the directions we're
5 going and probably identified a few new ones as
6 well. So I thought it was very valuable, you
7 know, meeting so far.

8 CHAIR SAADE: Deanne.

9 MEMBER HARGRAVE: So a lot of
10 information was shared today. A lot of it was
11 new to me, and I'm taking my perspective on
12 things and trying to figure out how the whole
13 picture comes together. So and it takes me a
14 little bit of time to do that. So I don't have a
15 whole lot of feedback for today, other than the
16 panel presentations were fantastic, and in
17 particular Dr. Abdullah.

18 CHAIR SAADE: Gary.

19 MEMBER THOMPSON: So I think today
20 stressed the very importance of geodetic data,
21 and it was a lot of discussion and geodetic data
22 always seemed to be -- to me it stressed to have

1 all this, we've got to have a good foundation and
2 good geodetic data.

3 MEMBER KINNER: I'm kind of in the
4 same situation as Deanne. It's all new to me in
5 some respects, but we touched on a lot of
6 subjects that I have been very interested in the
7 last couple of years. The dynamic Coast Pilot is
8 definitely one that gets my attention. The
9 ability of interagency coordination, so that the
10 charting that we get and can provide to the end
11 users is really, really good and that they are
12 willing then to use it.

13 And then the whole thing of just
14 letting people know what's out there and what's
15 available. I just learned a whole lot today.

16 CAPT ARMSTRONG: I also thought the
17 panels today were excellent, and I think helped
18 us focus our thinking somewhat. One item that I
19 thought came up a couple of times was the topic,
20 it came up in Juneau, was the delivery of data.
21 It was mostly in the context of the AIS system,
22 but I think that's a broader topic that, that

1 bears looking at.

2 There may be many ways to deliver data
3 to the users and AIS may have limitations. It
4 may serve for some things but there may be other
5 ways we should think about that in the near
6 future.

7 DR. MAYER: I have the opposite
8 perspective than Deanne and Captain Kinner. Andy
9 and I have been around here a very long time.

10 CAPT ARMSTRONG: A very long time.

11 DR. MAYER: Yeah. Well, Andy even
12 longer than I. But no, but from that
13 perspective, I think it's probably the most
14 supportive group of stakeholders that I've heard,
15 the most supportive group of senior leadership
16 that I've heard in all these years.

17 I mean, for the first time I come away
18 really enthused, and I think we're really looking
19 at an alignment of stars, that things can really
20 happen in this community.

21 So I'm very thrilled about that. I
22 totally agree with Andy that this concept of

1 delivery of data to the vessels is going to -- I
2 think we heard it yesterday with Juliana's
3 presentation. All these great things are
4 happening in terms of analyzing data onshore, and
5 how do we get that information to the vessel in a
6 very, very timely way and in the appropriate
7 forum.

8 And I think that will be a -- in my
9 mind, that's why I didn't want to see the Chart
10 of the Future disappear.

11 CHAIR SAADE: Kim.

12 MEMBER HALL: I thought I was going to
13 be last. Thanks, Ed. I have a ride waiting for
14 me outside. I really want to stress I've been on
15 this for three and a half years I think, and it
16 really was a great job with the panel. I
17 listened in earlier this morning and then I was
18 here for the afternoon, where it was just a great
19 job of keeping folks on topics.

20 I think Julie giving them specific
21 questions they needed to answer. I think we've
22 probably done that in the past, but perhaps

1 getting us involved as moderators also helps to
2 push that and ensure that the panelists aren't
3 just taking their rote topic and coming in and
4 talking to us, that they know, they have some
5 idea of who we are and what we might know, and
6 are giving a presentation that's actually helpful
7 to us and NOAA.

8 So a great move to have panelists as
9 moderators as well. I know I fought for that my
10 Year 1 and I think it's great.

11 The other one is I'm reminded now.
12 I've been all over the country, can't wait to go
13 to Hawaii. That would be awesome. I heard that
14 was your choice this morning.

15 But in some things that we hear,
16 geography plays such a small part, and it's kind
17 of refreshing to know that these problems aren't
18 just related to one area, that probably some
19 small changes can make some exponential benefits
20 to communities all over the country.

21 So it's not just -- and even when
22 you're in D.C., when you think you're just going

1 to get policy wonks, it isn't. They're people
2 who really know what's going on in the maritime
3 as well. We do exist inside the Beltway. So I
4 just want to stress that, and would have ideas
5 for the paper or for the letter once we get
6 there.

7 MEMBER PAGE: Yeah, I'll take it.
8 Anything other than Ed. Just like everybody
9 else, I thought it was a really good panel.

10 I was impressed by -- what's
11 impressive is that they are very, very supportive
12 of NOAA and their services. The downside is they
13 want more, you know. But that's good. They want
14 you and they love you and they want more of you.
15 So that's good, you know.

16 And I thought that, you know, the
17 information brokering was a big issue. I'm glad
18 to see that, you know, AIS has been around 15
19 years. It's finally getting around to try to
20 fulfill the expectation when it was first
21 developed, to provide some other capabilities.

22 But as Andy had mentioned, that's not

1 the only way to get information and of course for
2 Anne's purposes, there was another discussion
3 about a cell AIS and other systems, where you
4 don't need an AIS system. You can track vessels,
5 and also the apps and so on.

6 We could disseminate information. We
7 just do scatter of sometimes it's apps on cell
8 modems. Sometimes it's AIS, sometimes it's
9 computer delivered. So I think many people have
10 different ways of getting information. So while
11 it was good to see AIS tracking and I believe in
12 that and that's what the large ships out there
13 are going to use, but the reality is there's many
14 other customers out there.

15 So I would agree that information
16 brokering is a key issue and technology is a key
17 issue. I think you're hearing people are moving
18 towards technology, they like NOAA, they want
19 more. Technology is the answer and AIS is one of
20 several solutions. But apps and other tools that
21 people are starting to use will help enhance
22 maritime safety.

1 So it was great. I enjoyed it. It's
2 good stuff, thanks.

3 MEMBER MAUNE: I also supported the
4 panel that appreciated NOAA so much. Dr. Qassim
5 Abdullah is a personal friend of mine and I
6 thought he did a fabulous job of putting all that
7 together. I appreciate Julie trying to nail
8 these -- it's like nailing jell-O to a wall, to
9 try to figure out what to do with this matrix,
10 priority matrix.

11 And I appreciate Ed Saade, because Ed
12 said don't look at it from the perspective of
13 where do we need an issue paper, but look at it
14 from the perspective of where do we want to learn
15 more about this issue.

16 (Off-microphone comment.)

17 MEMBER MAUNE: Okay, all right. Well
18 that's a good idea, thank you.

19 MEMBER KELLY: As we move around the
20 table, of course we get a little repetitive. I
21 also think information transfer and the forms
22 that it takes and what information is relayed is

1 going to be very important, because just besides
2 NOAA, I can also envision Coast Guard and other
3 people wanting to use this same way to
4 communicate with vessels with new technology.

5 Whether that's through, you know,
6 electronic charts, whether that's through AIS,
7 whether that's -- there's almost unlimited new
8 opportunities and technology. I think we might
9 have to refine what role NOAA has and how that
10 fits into an overall input and transfer to and
11 from the marine transportation system. So I
12 think that that's really a good thing.

13 I also think, you know, Jim and Anne
14 did a great job putting that panel together, and
15 the one thing that hadn't been noted so far is
16 how good-looking the two co-moderators were. And
17 I think, you know, that really made the whole
18 thing go. So --

19 MEMBER CHOPRA: Thank you. First
20 meeting. Thoroughly enjoyed it. I thought
21 highlights from one of the panels, the morning
22 panel, leadership panel was that agencies realize

1 the issues and they want to work together.
2 That's a huge, huge positive, and how
3 appreciative they were of the work being done by
4 NOAA and everybody.

5 So I think that's a huge kudos. Yes,
6 it gives more, they want more. The glass is 90
7 percent full. They are hoping for that ten
8 percent or two percent as you define it. I
9 thought in the afternoon session, some specifics
10 came out, whether it was APA or whether it was
11 Dr. Abdullah. So some very good suggestions, and
12 I think there's some work to be done in that
13 space.

14 But overall, thoroughly enjoyed it,
15 learned a lot, so thank you.

16 MEMBER DUFFY: So throughout the day,
17 I thought this is a very good session, and
18 reminded of something an old boss said to me many
19 years ago, was the customer always wants more and
20 he is willing to pay less for it.

21 And I'm reminded of that as I walk
22 around from office to office on Capitol Hill and

1 pass the hat and talk about whether it's dredge
2 funding, funding for NOAA projects, that you
3 know, the federal funding aspect of everything we
4 do. I can advocate for the funding, but kind of
5 trust in the panel to direct us to the best use
6 of funds.

7 Some of the potential for the New
8 Orleans meeting really came to mind. That's what
9 I got from today. Thank you.

10 MR. BOLEDOVICH: So I would just go
11 through the list of the priorities that Nicole
12 raised this morning, because she's my boss.
13 Modernization, you've got our all over
14 technology. I don't think that's an issue at
15 all, so that's great. The emergency response is
16 on your list, that's great.

17 Sea level rise, you're having a panel
18 on it tomorrow. That's great. What you learn
19 from that I think will be where you next step
20 might come from. I think the helpful thing in
21 sea level rise would be an articulation from this
22 panel on the importance of these programs in

1 informing the nation about it, right.

2 What is the role of these programs?

3 In other words, I don't need the technology piece
4 here. It's more the fluff piece about the
5 important roles these programs play, to
6 articulate that from an independent source like a
7 panel would go a long way.

8 Kind of the conversation we were
9 having about communication, about this panel's
10 role just so we articulate it and it's on paper
11 written by somebody good. An independent group
12 would be good.

13 MS. BLACKWELL: So for the Navigation
14 Services panel, the one thing in particular that
15 I focused on and hope that the panel continues to
16 focus on is the need for accurate, 3D mapping of
17 onshore as well as underwater information, so
18 that you can truly build a precision navigation
19 system.

20 And I know that we use that term
21 differently, depending on where we sit. But to
22 envision transport of vessels or landing of

1 aircraft or whatever it is, the need for that
2 three dimensional, very accurate three
3 dimensional positioning of all things in that
4 area, in addition to the real time information
5 that's changing around you is really critical to
6 have this, this system.

7 And I know we're going to talk about
8 that some more in Louisiana. We'll continue to
9 talk about it. But as we do that together, I
10 think it's important to keep in mind what the big
11 picture is for precision navigation.

12 The other small thing I want to
13 mention is Glenn went through a number of acts
14 and legislation that are impactful to this group.
15 One thing that we'll hear about tomorrow is the
16 Geospatial Data Act, and I just want to make sure
17 that that gets clumped in with the other
18 legislation that we talked about today, and the
19 fact that we are beholden to that and that is
20 something that is evolving.

21 So we'll hear more about that
22 tomorrow, along with the office updates. So

1 we'll repeat that in the morning from my here's
2 what's coming next. So thank you.

3 CO-CHAIR THOMAS: Thanks Juliana.

4 Geez, so much has been said already. Real
5 quickly, all the way from starting with Glenn's
6 talk through this afternoon, it really did
7 highlight to me the power of these partnerships
8 and the coordination, and you know, how we can
9 bring the observing and the mapping and the
10 geodetics, geospatial together.

11 And I thought that the panels, they
12 were really excellent, but it was so nice because
13 I thought they kind of validated what the three
14 areas are doing and also validated a little bit
15 what we're doing as a panel, because so many of
16 the topics were already being discussed and
17 addressed either through our priorities or
18 through some other mechanism.

19 And I loved Nicole's breakdown of the
20 modernization and the emergency response and sea
21 level, because once again I think that those are
22 all topics that we're already talking about.

1 And lastly, I thought it was -- I
2 liked Admiral Nadeau's comment about the
3 superpower, you know, being that the U.S. being a
4 superpower, and a lot of that is due to our
5 mobility of vessels around the country. That
6 just kind of drives home, you know, why we are
7 really focused on navigation and trying to put it
8 all together.

9 RDML S. SMITH: So a lot of great
10 comments from all of you. The one thing that
11 struck me and I thought was really great was the
12 discussion about fog, because it was a different
13 problem and it's not necessarily one that this
14 panel or even these programs can directly solve.
15 But I think it's a different sort of -- it's a
16 different problem statement that may cause us to
17 think about the services that we provide and the
18 coalition we need to assemble in a different way.

19 And you know, I did want to -- I think
20 Anuj had a role both in the break and during the
21 discussion in getting that going. And so I did
22 want to -- I did want to thank you for that, and

1 I think it's the type of example of a fresh
2 perspective of what it is that we're after. If
3 the ports are shut down for 20 percent of the
4 time because of fog, that's a really big deal
5 with national scope and, you know, economic
6 importance and strategic importance. It means
7 we've lost 20 percent of our mobility.

8 And so I think -- so I think that big
9 picture thinking and narrowing in on a new
10 problem that may potentially now be solvable with
11 some of the assemblage of precision navigation
12 type tools and thinking. So thank you, Anuj, for
13 raising that.

14 PARTICIPANT: And we're going to start
15 the anti-fog research.

16 PARTICIPANT: I think the heater and
17 the fan is the best plan but --

18 CHAIR SAADE: Okay. You guys, I
19 think you've wrapped it up really well. I think
20 you've brought up some good points. I'll just
21 say one more time that comment about they want
22 more, I think that's a great affirmation that

1 it's a good thing. I think it's a great
2 affirmation that it means we're all doing, we're
3 doing a good job, and even more importantly
4 definitely it means that Juliana and Rich and
5 Shep and their teams are really doing a good job.

6 So don't leave yet. We're going to --
7 I'd like everybody to give yourselves a hand,
8 because I thought it was a great day and the
9 panels were dynamite.

10 (Applause.)

11 (Whereupon, the above-entitled matter
12 went off the record at 4:52 p.m.)

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Before: US DOC/NOAA

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