

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
AUGUST 28, 2018

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The Hydrographic Services Review Panel
met at the Elizabeth Peratrovich Conference Hall,
320 W. Willoughby Avenue, Juneau, Alaska, at 9:00
a.m., Joyce Miller, Chair, presiding.

HSRP MEMBERS PRESENT

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

JULIE THOMAS

GARY THOMPSON

NON-VOTING HSRP MEMBERS

CAPT 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

IOOS ADVISORY COMMITTEE MEMBERS PRESENT

VICE ADMIRAL CONRAD C. LAUTENBACHER, Ph.D.,

Chair

TOM GULBRANSEN, Vice Chair

THOMAS B. CURTIN

JENNIFER HAGEN

VAL KLUMP

JUSTIN MANLEY

CHRIS OSTRANDER

LaVERNE RAGSTER

DOUG VANDEMARK

STAFF PRESENT

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

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

GLENN BOLEDOVICH, Policy Director, Policy and
Constituent Affairs Division, National
Ocean Service

CAPTAIN RICK BRENNAN, Office of Coast Survey

ASHLEY CHAPPELL, Office of Coast Survey

VIRGINIA DENTLER, Center for Operational
Oceanographic Products and Services

COLBY HARMON, Office of Coast Survey

DR. NICOLE KINSMAN, National Geodetic Survey

CAPT ELIZABETH KRETOVIC, Office of Coast
Survey

LAURA REAR McLAUGHLIN, Center for Operational
Oceanographic Products and Services

LYNNE MERSELDER-LEWIS, HSRP Coordinator

NEERAJ SARAF, Office of Coast Survey

ALSO PRESENT

LIEUTENANT GOVERNOR BYRON MALLOTT, State
of Alaska

RDML MATTHEW T. BELL, Commander, 17th Coast
Guard District, U.S. Coast Guard

CAPT HANS ANTONSEN, Southeast Pilots
Association (SEPA)

LT BART BUESSELER, Alaska Navigation
Manager, OCS/NOS/NOAA

HEIDI HANSEN, Deputy Commissioner,
Department of Natural Resources,
Alaska

FRANCES LEACH, Director, United Fishermen of
Alaska (UFA)

MOLLY McCAMMON, Executive Director, Alaska
Ocean Observing System (AOOS)

DON MOORE, Decision Support Specialist, National
Weather Service Alaska Region

JACQUELYN R. OVERBECK, Coastal Hazards
Geologist, State of Alaska, Department
of Natural Resources, Division of
Geological and Geophysical Surveys

MARK L. SMITH, CEO Vitus Energy, LLC

ANGIE THROWER, Captain, Allen Marine Tours

CAPT CARL UCHYTIL (USCG, ret.), President
and Juneau Port Director, Alaska
Association of Harbormasters and Port
Administrators (AAPHA)

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

2 9:04 a.m.

3 CHAIR MILLER: Would everyone please
4 take their seats? Admiral?

5 RDML SMITH: Thank you, Joyce.
6 Welcome to the joint session of the HSRP and the
7 IOOS Advisory Committee.

8 First, before we get started, I'd like
9 to acknowledge that this meeting is being held on
10 the traditional lands of the Haida and Tlingit
11 people and pay my respect to elders, both past
12 and present. The Haida and Tlingit people have
13 always lived on these sacred and wondrous lands
14 and waters of Southeast Alaska as the original
15 occupants and guardians.

16 Madam Chairwoman.

17 CHAIR MILLER: Good morning. I'm
18 Joyce Miller, Chair of the NOAA Hydrographic
19 Services Review Panel. It's great to be in
20 Juneau, Alaska, where the blue economy is right
21 out the window.

22 One item, Nicole LeBoeuf is going to

1 join us later. She is the NOS Acting Assistant
2 Administrator, and she's been delayed by weather
3 but she will be joining us later.

4 We're thrilled to have a joint session
5 with the IOOS AC, and we will have three
6 opportunities for public comment over the next
7 three days. If you want to sign up, if the
8 public wants to sign up either here in the room
9 or on the webinar, you can submit one in writing
10 and you can do that to either Lynne Mersfelder-
11 Lewis or Virginia Dentler.

12 I'd also like to remind our panel
13 members today, sometimes we don't follow it very
14 closely, but please always, when you're speaking,
15 for the record, please announce or say your name
16 and whether you're HSRP or IOOS.

17 Admiral.

18 RDML SMITH: Good morning, HSRP and
19 IOOS Advisory Committee members. I am the HSRP
20 DFO and Director of the Office of Coast Survey at
21 NOS. I see a really great joint session this
22 morning, coming up this morning, and a real focus

1 on Alaska and the Arctic. The next two days will
2 allow ample time for formal and informal
3 opportunities to discuss topics of neutral
4 interest for both groups and to focus on their
5 own priorities, as well.

6 A few housekeeping details. The exits
7 are the way we came in and the restrooms are out
8 in the lobby. The NOS and NOAA staff, there are
9 quite a few here, and subject matter experts are
10 at your beck and call this week. You'll see some
11 familiar faces. I do want to just call out the
12 Alaska-based NOAA folks here. Nic Kinsman. Nic,
13 are you here? There's Nic who is the Geodetic
14 Advisory for Alaska. Amy Holman. Amy, are you
15 here? Amy is around somewhere. Most of you
16 probably know her. And Lieutenant Bart
17 Buesseler, the tall guy in uniform there, is the
18 Navigation Manager for Alaska.

19 Captain Rick Brennan, Jim Crocker, and
20 Liz Kretovic are here from Coast Survey. Colby
21 Harmon from MCD, Laura Rear McLaughlin from CO-
22 OPS, Neeraj Saraf from Coast Survey Development

1 Lab, Jim Rice and Glenn from NOS Policy. And
2 you'll have help from Lynne Mersfelder-Lewis and
3 Virginia Dentler, who are seated behind me.

4 From IOOS, you have Marnie Brown,
5 Sabra Comet, Kate Culpepper, and Dave Easter on
6 site.

7 I want to acknowledge the Chair of the
8 IOOS Advisory Committee and former NOAA
9 administrator, Vice Admiral Conrad Lautenbacher,
10 and the DFO, Jessica Snowden. Welcome. And the
11 Director of IOOS, Carl Gouldman, and the eleven
12 IOOS Advisory Committee members. There are bios
13 circulated in advance.

14 So Nicole LeBoeuf will be joining us
15 later this morning after some weather delays, and
16 she's serving as the Assistant Administrator for
17 the NOS. Dr. Callender, who many of you know, is
18 moving to the Washington Sea Grant.

19 So in Nicole's absence, Glenn
20 Boledovich has agreed to make a few remarks on
21 behalf of NOS.

22 Glenn.

1 MR. BOLEDOVICH: Okay. Good morning,
2 everyone, and welcome. I'm in the cold spot
3 right here. You can see. I have her remarks in
4 front of me, but they're all written in the first
5 person. And since I'm not her, I will not try to
6 struggle my way through those.

7 So I'm just going to welcome everyone
8 here. This is the first joint meeting, joint
9 session of the Intermediate Ocean Observing
10 System Advisory Committee and the Hydrographic
11 Services Review Panel and long overdue. I've
12 been a supporter of that for many years, and I'm
13 glad to see it happen. There's a lot in common
14 with these programs and the increased
15 communication between not only the programs but
16 their advisory committees I think is an important
17 thing to keep ongoing and to foster going into
18 the future. So I'm very pleased to see that.
19 I'd like to see us maybe do it once again
20 sometime, perhaps in Washington, D.C., where we
21 might be able to make an impact on some national
22 federal decision-makers about the work we're

1 doing together to move things forward.

2 But it's great to be back here in
3 Alaska. I lived here, actually, for 14 years,
4 ten years in the Aleutian Islands in Unalaska,
5 Dutch Harbor, where I started as a canary rat
6 when I was, like, 20 years old and became a
7 longshoreman and worked on foreign vessels quite
8 a bit in the Bering Sea during the whole transfer
9 of the EEZ to American fishing. I worked at
10 several opportunities there.

11 I had a wonderful time there. A
12 couple of hernia surgeries later, I thought maybe
13 I'd go back to school, so I moved to Anchorage
14 and got my undergraduate degree at the University
15 of Alaska Anchorage. So it's a thrill and an
16 honor to be back up here. It certainly is where
17 I fostered my interests and commitment to ocean
18 and coastal issues, so it's a pleasure for me to
19 be back up here.

20 As Admiral Smith noted, our
21 administrator of the Ocean Services recently
22 departed from the head of NOS. He's taking over

1 the Washington State Sea Grant program, so he's
2 on his way traveling across the country right
3 now, I believe. And Nicole LeBoeuf, my boss, the
4 acting head of the Ocean Service, has been in
5 Juneau in the area all weekend and she's a short
6 floatplane away and can't get here. She's been
7 stuck there since yesterday. She was supposed to
8 be here last evening, actually, so she's
9 desperately trying to get back here and join us.

10 So with that, I think I'll leave it at
11 that. I'm looking forward to an amazing meeting,
12 and I think, Nicole, are you on the phone?

13 MS. LeBOEUF: I'm on the phone. I
14 don't know if you guys can hear me.

15 MR. BOLEDOVICH: We can hear you loud
16 and clear. Please, go ahead.

17 MS. LeBOEUF: Well, Glenn, you did a
18 great job. You've spent a lot more time in
19 Alaska than I have. Good morning, everyone. I
20 am, as Glenn said, a floatplane away from you
21 guys. I'm in Tenakee Springs. Not a bad place
22 to be stranded, but we are stuck in here, as

1 well.

2 I just wanted to say good morning and
3 I'm sorry I can't be there. I'm looking forward
4 to meeting those of you that I don't know already
5 and seeing some familiar faces. Some of you
6 have, you know, I've met some of you already.
7 Those of you who don't know me, I'm the Deputy
8 Assistant Administrator for the National Ocean
9 Service and will soon be assuming the role of
10 Acting Assistant Administrator for the Ocean
11 Service. As you guys probably have heard,
12 Russell Callender has moved out west to be the
13 director of the Washington Sea Grant program. I
14 know he sends his best to all of you and will be
15 looking forward to getting visitors as soon as
16 he's set up there.

17 I'm truly looking forward to the joint
18 session and whatever I can participate in.
19 Hopefully, the weather will clear tomorrow and
20 I'll be with you. And I'll just give my best to
21 you all once I get there. I really know how
22 important this meeting is and I thank you all.

1 RDML SMITH: Thank you, Nicole. We
2 look forward to your arrival, safe arrival, and
3 have a safe trip. We'll see you hopefully later
4 today.

5 MS. LeBOEUF: Yes, and I'll be on the
6 phone today as much as I can.

7 RDML SMITH: Great. Thank you. So I
8 would also like to acknowledge a few other
9 individuals who have made time and traveled far
10 to get to this meeting. Is Garrett Boyle, the
11 legislative director for Senator Murkowski, here?
12 Welcome. Thank you. Also from Senator
13 Murkowski's office, Ann Robertson? Great. From
14 the Juneau office of Senator Sullivan and
15 Murkowski, Connie McKenzie? Hi, Connie. Ephraim
16 Froehlich from Governor Walker's office? Is
17 Ephraim here? I think we'll see some of Ephraim
18 later on this week. Janan Evans-Wilent from the
19 Commerce Ocean Subcommittee, welcome.

20 Have I missed any congressional or
21 state representatives? All right.

22 Before we go any further, I really

1 need to call out Ed Page. Where did Ed go? Ed
2 is the director of the Alaska Marine Exchange and
3 has served as sort of our local host for
4 logistics and for some of the side events we
5 have. So thank you, Ed, for your insights into
6 Alaska over stories at breakfast this morning and
7 for hosting all three of these meetings.

8 I also want to thank Anna Branch on
9 your staff. Thanks, Anna, for all the help
10 getting this set up.

11 For those of you outside of Juneau,
12 there is, the Tourism Bureau would like us to
13 help them with their data collection, as we like
14 others to help us with our data collection. And
15 there are some sort of questionnaires that
16 they've asked us to fill out, so you'll see those
17 around.

18 Okay. Back to you, Madam Chairwoman.

19 CHAIR MILLER: Thank you. I'd like to
20 also thank Ed and Anna for all the hard work.
21 This has been quite -- herding cats, I think, is
22 probably the best description. Now I'd like to

1 have the panel members, anyone around the main
2 table, introduce yourselves and, very briefly,
3 the organization you represent and where you're
4 from.

5 So I'll start. I'm Joyce Miller. I'm
6 retired from University of Hawaii. And Ed?

7 VICE CHAIR SAADE: Good morning. I'm
8 Ed Saade. I'm the president of Fugro USA. It's
9 really nice to be back in Alaska. I started my
10 career in 1975 working in the Bering Sea and
11 around the Pribilof Islands, and that experience
12 got me going my entire career. So I owe a lot to
13 Alaska, and I'm really glad to be here.

14 MR. EDWING: Good morning. I'm
15 Richard Edwing, the Director of the Center for
16 Operational Oceanographic Products and Services,
17 or Tides and Currents is a simpler name, out of
18 Silver Springs, Maryland. I'm very pleased to be
19 here in Juneau. I've been to many other parts of
20 Alaska but never quite made it to the panhandle,
21 so it's good to be here.

22 MS. BLACKWELL: Good morning. I'm

1 Juliana Blackwell. I'm the Director of NOAA's
2 National Geodetic Survey, or NGS, and I'm happy
3 to be here. I've seen to Alaska a few times, but
4 this is my first experience in Juneau so looking
5 forward to getting to know more about the place.
6 Thank you.

7 RDML BELL: Hi, good morning. Matt
8 Bell. I'm the District Commander here for the
9 17th Coast Guard District right here in Juneau,
10 responsible for all Coast Guard actions in and
11 around the state of Alaska, Bering Sea, Gulf of
12 Alaska, Western Pacific, and that new ocean
13 opening up, the Arctic.

14 MR. GULBRANSEN: Good morning. Thanks
15 for having us. Tom Gulbransen from Battelle, one
16 of the data scientists in our environmental
17 group, co-chair of the IOOS Federal Advisory
18 Committee, and haven't been up here since '89 and
19 '91, so I'm glad to be back under better
20 circumstances.

21 MS. HAGEN: Good morning. Can you
22 hear me? Am I coming through? Okay. Jennifer

1 Hagen. I'm with the Quileute Tribe located in
2 the Coast of Washington, IOOS Committee member.
3 And the last time I was in Alaska was in a
4 capacity working for NOAA on damage assessment of
5 the Exxon Valdez.

6 MS. KLUMP: Val Klump. I'm the Dean
7 of the School of Freshwater Sciences, University
8 of Wisconsin Milwaukee. We sit on 20 percent of
9 the world's surface freshwater, second largest
10 coastline in the United States. My first trip to
11 Alaska and I'm really glad to be here.

12 MR. McDONALD: I'm Tony McDonald. I'm
13 the Director of the Urban Coast Institute at
14 Monmouth University, and we're located in Bruce
15 Springsteen country at the beautiful New Jersey
16 Shore.

17 MR. MANLEY: My name is Justin Manley.
18 I run an independent consultancy called Just
19 Innovation focused on maritime robotics, ocean
20 tech, innovation and disruption. And I am from
21 the Boston area.

22 MR. OSTRANDER: Good morning. My name

1 is Chris Ostrander, formerly the Director of the
2 Pacific Islands Ocean Observing System and
3 recently moved to University of Utah as
4 Assistance Vice President for Research.

5 MS. RAGSTER: Good morning. My name
6 is LaVerne Ragster. I'm a retired professor of
7 marine biology and President Emerita at the
8 University of the Virgin Islands. I'm a member
9 of the CariCOOS Stakeholder Council, and this is
10 my third or fourth trip to Alaska, second time to
11 Juneau, and every time I think this place is so
12 much like the Caribbean.

13 MR. VANDEMARK: I don't know what to
14 say to that. I'm Doug Vandemark. I'm a
15 professor at the University of New Hampshire.

16 MEMBER GEE: Lindsay Gee. I'm the
17 Mapping and Science Coordinator at the Ocean
18 Exploration Trust, the operators of the
19 Exploration Vessel Nautilus.

20 MEMBER HALL: Hi. I'm a little
21 disadvantaged here at the corner of the table.
22 My name is Kim Hall. I'm the principal and

1 founder of a small consultants firm called Brizo
2 Maritime Consulting where I concentrate on
3 maritime security and nautical operations.

4 And just to take one moment, I did get
5 Ed Page a couple of gifts, including the movie
6 "Rookie of the Year," since this is his first
7 year on the Committee and he got to put this
8 meeting together. And then a little sign that
9 says "You don't have to be crazy to work here.
10 We'll train you." So welcome aboard, Ed, and
11 thanks for putting this meeting together.

12 MEMBER SHINGLEDECKER: I'm Susan
13 Shingledecker. I am Vice President of Chesapeake
14 Conservancy, a regional non-profit based in
15 Annapolis, Maryland. And before that, I spent 12
16 years with BoatUS, the Boat Owners' Association
17 of the United States.

18 MR. THOMPSON. Good morning. My name
19 is Gary Thompson. I'm with the North Carolina
20 Emergency Management. I'm the Director of the
21 North Carolina Geodetic Survey.

22 MEMBER LOCKHART: Good morning. I'm

1 Carol Lockhart, owner and hydrographer with
2 Geomatics Data Solutions based in Portland,
3 Oregon.

4 MEMBER ATKINSON: Good morning. I'm
5 Larry Atkinson from Old Dominion University in
6 Norfolk, Virginia.

7 MEMBER MCINTYRE: Good morning. Anne
8 McIntyre. I'm a pilot on the Columbia River and
9 a heavy user of NOAA products and spent the
10 formative years of my career hauling oil between
11 Valdez, Nikiski, and Anchorage.

12 MEMBER KELLY: Good morning. Ed
13 Kelly. I'm the Executive Director of the
14 Maritime Association of the Port of New York and
15 New Jersey. We are a marine exchange, as well as
16 a trade association and advocate for commercial
17 deep sea marine operations.

18 MEMBER DUFFY: Good morning. I'm Sean
19 Duffy, Executive Director of the Big River
20 Coalition, a maritime trade association based in
21 New Orleans on the Mighty Mississippi River.

22 MEMBER MAUNE: Good morning. I'm Dave

1 Maune from Dewberry Engineers in Fairfax,
2 Virginia. This is my 15th trip to Alaska because
3 I am managing the IfSAR mapping statewide for
4 Alaska. I also managed the GPS survey of the
5 elevation of Denali several years ago, 20,310
6 feet. And I also managed the expedition the
7 following year to take ground-penetrating radar
8 up to the top of the mountain to determine the
9 depth of the ice and snow, 6.1 meters.

10 MEMBER THOMAS: Juliana Thomas. I am
11 a program manager in PI for a program, a waves
12 program, called CDIP and also an advisor for the
13 Southern California Coastal Observing System,
14 that's SCCOOS, one of the regional associations
15 for IOOS, and I used to be director for nine
16 years of SCCOOS. So it's really exciting to have
17 a joint meeting.

18 MEMBER PAGE: I'm Ed Page, the
19 Executive Director of Marine Exchange of Alaska.
20 My part-time job is saving damsels in distress,
21 as I did yesterday. I had the good fortune, the
22 United States Coast Guard sent me here in 1973,

1 after sailing on the East Coast and Boston. I
2 was forced to bring a ship around and start
3 sailing Alaska patrols and fell in love with
4 Alaska. After thirty years with the Coast Guard.
5 I retired 17 years ago and started this Marine
6 Exchange of Alaska because I love this area so
7 much. So thank you for coming and visiting our
8 neighborhood.

9 CAPT ARMSTRONG: Good morning. I'm
10 Andy Armstrong. I'm the NOAA Co-Director of the
11 NOAA University of New Hampshire/Joint
12 Hydrographic Center in Durham, New Hampshire.

13 DR. MAYER: Hello. I'm Larry Mayer.
14 I am the UNH Co-Director of the Joint
15 Hydrographic Center and Director of the Center
16 for Coastal and Ocean Mapping at the University
17 of New Hampshire. And it's actually a real
18 pleasure for me to be this far south at this time
19 of year in Alaska. For the last 15 years, I've
20 either been on the Healy or the Oden somewhere
21 way, way, way up there. So it's nice to see
22 summer in Alaska.

1 MS. SNOWDEN: I think I've already
2 been introduced. Jessica Snowden, Designated
3 Federal Official for the IOOS Advisory Committee
4 and very happy to be here.

5 MR. GOULDMAN: Carl Gouldman, Director
6 for the IOOS program, which is organizationally
7 placed in the National Ocean Service within NOAA,
8 but we're supposed to represent all the federal
9 agencies who have interests in coastal ocean
10 observing in the U.S. head of tide to EEZ and
11 really glad to be here today in Alaska for my
12 third time, first time to Juneau. And I'm really
13 happy we have the two committees meeting
14 together.

15 VADM LAUTENBACHER: Conrad
16 Lautenbacher. Retired Naval officer and a
17 Pacific sailor, I might add, so it's always a
18 pleasure to be in this part of the world. I
19 represent GeoOptics, which is a satellite
20 company, a small satellite company. Hopefully,
21 we're going to do things to observe the oceans.
22 And as a former head of NOAA, I am really

1 delighted to see so many people in one place
2 thinking about the oceans. So thank you all for
3 coming. This is the largest group I've seen
4 together. Oceans, as you know, people are very
5 fragmented. That's the way it works. But today
6 we have a huge number of people here all working
7 on the same cause. Thank you.

8 RDML SMITH: Thank you all for
9 introductions. I'd like to bounce the microphone
10 right back to Admiral Lautenbacher to offer some
11 remarks.

12 VADM LAUTENBACHER: By golly, that was
13 my speech, so I guess you heard it already. No,
14 it's indeed a great honor and a pleasure to be
15 here, as this being sort of a new experience to
16 have the number of people here and the groups
17 together that do different things but all part of
18 a big picture to help provide the kind of
19 conservation and usage of our oceans that will
20 give us the future for our children and whatever
21 happens beyond when we are here. So thank you
22 all for coming and doing this.

1 Representing the Integrated Ocean
2 Observing System group, let me put you in the
3 situation here. That's a -- well, this has been
4 going for four or five years, six years,
5 something like that. And the rules are set up so
6 that everybody changes position. It's not
7 staggered. So what we have here is the last
8 meeting of the current group of people who are on
9 this panel, so, out of the number of people that
10 are on the panel now, ten of them will be
11 replaced and there will be four people that are
12 still onboard. So it's really kind of a
13 turnover. It's our graduation, so to speak, for
14 a number of people that are sitting at the tables
15 around this room. And I know, having worked with
16 them for the last four years or so, they're a
17 fabulous bunch of people and they've done a
18 wonderful job working on the Integrated Ocean
19 Observing System.

20 I would like to also say that these
21 people are not going to go back and forget about
22 the ocean when they leave here, I can assure you

1 that. They all are dedicated to what goes on and
2 they're going to be great supporters, and
3 hopefully the more people that cycle through
4 these advisory committees the more audience and
5 cheerleaders we develop in the public and the
6 private sectors to help build an understanding of
7 what we need to do to save our oceans and to make
8 them even more valuable in the future.

9 I've enjoyed every moment of this,
10 myself as being part of it. And I've appreciated
11 all the support we've had from the folks that are
12 coming along.

13 I think that we have a great deal to
14 do today with the joint meeting in terms of
15 looking at the issues that cross everyone's, you
16 know, venues at this point and looking at putting
17 it together. It is, after all, you've heard,
18 many of you have heard my mantra before, the
19 Earth is a system of systems. You're dealing
20 with system of systems. You have to put the
21 pieces together. You can't do the ocean without
22 the atmosphere. You can't do the atmosphere

1 without the ocean. You can't forget the physical
2 and the chemical and the biological. They all
3 work together. Sometimes the biological part is
4 the hardest part to deal with because the changes
5 happen most quickly in that region than they do
6 with changing the salinity and the amount of
7 carbon dioxide in the air.

8 So there's a great deal of joint work
9 to be done, and that's another reason why I'm
10 glad to see so many people here with different
11 aspects of understanding of our environment and
12 working on the same cause. So I look forward to
13 a very profitable and enlightening discussion and
14 hopefully reports that come out from this that
15 will influence where we go in the future. Thank
16 you.

17 RDML SMITH: Thank you, Admiral. Carl
18 Gouldman, do you have some remarks to share?

19 MR. GOULDMAN: I do. Thank you, Shep.
20 I have a few things to say. I've got one
21 announcement to make that I'll give a little bit
22 of lead-in. But first off, thank you for all of

1 the people that made the efforts to put this
2 whole meeting together to bring the two
3 committees together, the team of folks that have
4 been doing this have been going through a lot of
5 motions to get everyone here, and I'm happy for
6 everyone to have traveled this far to be
7 together. And I really appreciate through the
8 years the advice that we get from the Advisory
9 Committee for IOOS, but the HSRP is a key
10 advisory group to NOAA, as well, and HSRP
11 services are part of IOOS and a fundamental
12 component. And we don't have a lot of overlap,
13 and I've never been able to be a part of an HSRP
14 meeting together.

15 When I say not a lot of overlap, we
16 have a lot of overlap in mission interest and
17 expertise areas. We don't have enough resources
18 to have actual duplication going on, and we have
19 a lot of specialty capabilities that we try to
20 bring together under both committees. And I'm
21 really happy to have folks together for those
22 reasons.

1 Within IOOS, the network of eleven
2 IOOS regions is non-federal and it's mandated to
3 bring non-federal data into common standards into
4 this federal system. And the announcement I have
5 to make, I've got to read this to make sure I get
6 my history correct here, but in 2009 when the
7 IOOS Act was signed into law it contained a
8 provision to verify that all U.S. IOOS regional
9 associations were gathering and managing data in
10 compliance with NOAA standards, essentially to
11 get NOAA's blessing on non-federal ocean
12 observations. The IOOS construct fundamentally
13 relies upon a federated data structure that
14 brings regional and local expertise together into
15 a national system while meeting the highest-
16 priority regional needs.

17 Certification would mean that these
18 non-federal pillars of IOOS were gathering and
19 managing data in ways that meet NOAA standards
20 and it would extend liability coverage to the use
21 of RA data. IOOS is ultimately a network of
22 partnerships, and certification strengthens the

1 partnerships between the interagency and regional
2 components of IOOS by showing national confidence
3 in non-federal networks and by demonstrating the
4 commitment of the regional associations by
5 meeting and documenting compliance with national
6 standards.

7 So we certified the first regional
8 association PAC IOOS in 2015. And today, after a
9 lot of hard work by a lot of people, I'm so happy
10 to tell you that NOAA has certified our eleventh
11 and final regional association, CENCOOS. That's
12 Central and Northern California, and it's a
13 remarkable achievement to have all eleven of the
14 eleven regions certified. And I hope you'll join
15 me in congratulating them on this important
16 milestone. Thank you.

17 And so, for me, it's fun to see Chris
18 Ostrander who's now at Utah across the room and
19 he kicked off the first region getting certified
20 and to have Julie here as part of the HSRP and
21 she worked on the SCCOOS work getting done. And
22 we've got folks in the audience, Molly McCammon

1 from Alaska and Ru Morrison from the Northeast,
2 and it's great to see this network coming
3 together and it's a real evolution from the
4 beginning of IOOS to a place where we're really
5 getting things done together and working together
6 in this federal/non-federal partnership. Thank
7 you.

8 RDML SMITH: Thank you, Carl. And
9 congratulations on the certification program. I
10 think that's a really exciting step forward for
11 not only the IOOS program but for sort of
12 observations and services in general and really
13 leading the world in a new approach. So
14 congratulations.

15 We're now to the point of recognizing
16 our guest who we've left sitting up there all by
17 himself as we've done introductions. I do want
18 to introduce the D-17 Commander, Rear Admiral
19 Matt Bell, who just arrived here in D-17,
20 although he's a veteran of Alaska. I first met
21 Admiral Bell when we were jointly sponsoring the
22 Coast Guard and NOAA Corps officer training class

1 at the Coast Guard Academy. So we spent a few
2 times there.

3 He's a really inspirational leader for
4 the Coast Guard and for young officers, and I
5 want to thank him here in this context for your
6 leadership for the coming generation of NOAA
7 Corps officers, as well. So Admiral Bell has
8 some thoughts to offer on the Coast Guard's
9 perspective on operations in Alaska. Admiral
10 Bell.

11 RDML BELL: Great. Thanks, Shep. So
12 just a quick introduction. So everybody is
13 talking about their Alaska history, so I don't
14 think I'd go back as far as Ed Page so mid-80s.
15 I don't want to give a specific date because that
16 makes me really old. Thanks, Ed. But back and
17 forth to Alaska since the mid-80s doing Bering
18 Sea fishery, search and rescue, Gulf of Alaska,
19 IUU/HSDN enforcement on the Western Pacific, and
20 been probably 18 or 19 different ALPATs, our
21 Alaska patrols for cutters out of Hawaii,
22 Alameda, and then two ship's CO jobs in Kodiak.

1 So my wife and I call Kodiak home, so it's nice
2 for us to be back in the state. Been doing about
3 33 and a half years of service in the Coast
4 Guard.

5 By education, I'm a chemist. So
6 groundwater, trace metal analysis, graphite
7 instrumentation from Flagstaff and Northern
8 Arizona University. But I'm a sailor, as best as
9 you can be at. Sailed everywhere except the
10 Indian Ocean, I think, on a Coast Guard cutter.
11 So East Coast, West Coast, but most of my big
12 ship time is here, have been spent in Alaska.
13 And for Nancy and I, we're happy to be back in
14 Alaska. So, you know, we talked about everybody
15 here talking about oceans, but the fact that
16 you're in Alaska and a lot of you are going to
17 talk about Alaska, I'm good.

18 So we're excited to be here. There
19 are three orders from me, so anybody you meet
20 it's three orders from me. I'm never leaving
21 Alaska. They're going to have to either promote
22 me or kick me out.

1 So for those of you who are
2 interested, so Cutter Healy is in Alaska waters.
3 Today they're in Dutch Harbor. Today, I think
4 they're going to get underway, if not today
5 tomorrow, heading to Seward. Then they'll pick
6 up the next round of scientists for phase two and
7 then head back up to the Arctic.

8 So good morning, distinguished panel
9 members, good friends, and critical partners.
10 Welcome back to Alaska for those of you visiting.
11 And for many of those who are first time, welcome
12 to sunny Juneau. Liquid sunshine, that's what we
13 call it here. That's my attempt at humor, and
14 Nancy says work on that.

15 So a disclaimer up-front. So Dave
16 Seris works in my District 17 DPW shop, so the
17 Waterways Management folks, so he's the expert
18 behind most of these thoughts and comments. So
19 if there's any really difficult questions, Dave,
20 you can come up here and sit with me so I'm not
21 all by myself.

22 So much has changed in Alaska since I

1 think you were here last in 2012. Outer
2 continental shelf drilling in the Arctic has come
3 and gone and obviously may come back again. The
4 1,070-passenger cruise ship, Crystal Serenity,
5 has transited the Canadian Northwest Passage
6 twice, 2016 and 2017.

7 A widened Panama Canal has brought
8 newer, larger cruise ships to Alaska and the West
9 Coast. This summer, we saw our first of these
10 ships, the Norwegian Bliss, which is actually
11 tied up right out here today, with a crew of
12 nearly 2,000 and a capacity for more than 4,000
13 guests.

14 Nome will see five cruise ships this
15 summer. Twelve are scheduled for next summer and
16 even more are coming to the state in the coming
17 years.

18 Terrestrial-based GPS is on its way
19 out, and nationwide AIS is coming online, has the
20 capability to change the way the government
21 delivers navigation services to the mariners.
22 Alaska, of course, is the exception that proves

1 the rule. Here we partnered with Alaska Marine
2 Exchange -- thank you, Ed -- and their network of
3 terrestrial-based AIS sites. You'll learn all
4 about that this week, I believe.

5 I'd like to start by pointing out the
6 partnership between the Coast Guard and NOAA as
7 one of the most important ones that our far-
8 reaching service has. In the few short months
9 I've been here, I've already had the pleasure of
10 meeting with Deputy Undersecretary Friedman, as
11 well as Deputy General Counsels Jeff Dillen and
12 Kristen Gustafson. This is a testament to the
13 importance that we both place on this vital
14 relationship.

15 I'd also like to point out the great
16 work that Admiral Shep Smith does in taking care
17 of us here in Alaska. One of the most impressive
18 things he does is manages NOAA's Office of Coast
19 Surveys Officer Corps to ensure that there's
20 always someone in the ranks who has a deep
21 understanding of Alaska's unique maritime
22 environment and economy.

1 Those individuals, maybe here in
2 Alaska, or working at Sand Point or in Silver
3 Springs. But they are always available and ready
4 to work with our staff here in Juneau when we see
5 emerging trends that require a response.

6 Next slide, please. I'm a simple
7 sailor, so the best way I can think to give you
8 the Coast Guard's perspective on matters is to
9 give you a sail story or two. The 98-foot
10 Fishing Vessel Destination disappeared on
11 February 11th in 2017, with her crew of six
12 missing. The ensuing search found no survivors.
13 This is the kind of case that isn't supposed to
14 happen anymore in the rationalized fishing
15 industry where the pressure to be on the grounds
16 regardless of the weather is no longer there.

17 The Coast Guard's Marine Board's
18 inquiry of this sinking is not yet complete, so I
19 cannot share its findings, but I can tell you a
20 bit about the investigation. Our first clue came
21 in the form of AIS transmissions from the Marine
22 Exchange in Alaska's terrestrial AIS sites. It

1 gave us some indicators of what was happening in
2 the moments prior to the vessel sinking. The
3 fact that this was a terrestrial AIS site is very
4 important. It means that the Destination's AIS
5 data is refreshing every couple of seconds, vice
6 every hour or even longer if we had to wait on
7 our satellite AIS data. It also meant we had a
8 place to look for the vessel.

9 Our casualty investigators reached out
10 to NOAA for support. And after an unsuccessful
11 search by the Oscar Dyson, the Coast Survey Ship
12 Fairweather located not only the vessel but also
13 some of the nearby crab pots. This allowed
14 further investigation by our medium icebreaker
15 the Healy and a Coast Guard dive team that used
16 ROVs to obtain imagery of the vessel and even
17 recover some of those pots. As it turns out,
18 some of these pots were heavier than people
19 thought and brought into question some of the
20 entering assumptions that are a foundation of
21 stability calculations for this fleet.

22 Since then, we've been able to focus

1 our efforts on prevention and actually sent teams
2 out to the field to weigh individual crab pots
3 and ensure that the stability letters were
4 correct. Without those capabilities the NOAA
5 Coast Guard Survey brings to the table, we never
6 would have found this vessel and none of this
7 would have been possible.

8 Next slide, please. You probably
9 remember reading about this grounding from July
10 2nd in 2015. Fennica was part of Shell's
11 exploratory drilling fleet. The ship played a
12 key role in Shell's operation, as this is the
13 vessel that would have been used to place the
14 capping stack in the event of a loss of well
15 control. It had to sail back to Seattle for
16 repairs as the clock was ticking on an already
17 short drilling season. Fennica was getting
18 underway from Dutch Harbor via Hog Island Channel
19 and grounded on an unchartered shoal. We figured
20 this out pretty quickly since the survey ship
21 Fairweather was already in Dutch Harbor on a mid-
22 patrol break and was able to investigate

1 immediately.

2 Now, I can tell you, as an Alaska
3 sailor, Dutch Harbor, home away from home for
4 most of us, thought that an unchartered shoal
5 could go unnoticed for such a long period of time
6 with this much traffic was a bit disconcerting.
7 While not a direct cause, the rate at which
8 things are changing in Alaska and the Arctic sets
9 the stage for this kind of casualty. New
10 activity on the outer continental shelf after
11 decades of dormancy brought new types of vessels
12 to Alaska, larger vessels and some with deeper
13 drafts than have historically been used in our
14 waterways. The addition of Shell's 29 vessels
15 put the Dutch Harbor close to or over its
16 capacity. So you can see ships anchoring in new
17 locations are taking different routes to avoid
18 congestion.

19 Hog Island Channel, where this
20 grounding occurred, is frequently used, just not
21 by vessels that draw up 26 feet. Ironically,
22 this new use of Hog Island Channel was being

1 driven by activity occurring more than a 1,000
2 miles away. I ask you to keep this in mind as
3 you provide input to NOAA on how best to prepare
4 for potential changes in the Arctic and the rest
5 of Alaska.

6 Next slide, please. Here's my final
7 sea story for the day, at least formally in this
8 presentation. Champion Ebony is a 599-foot tank
9 vessel that grounded on an unchartered shoal on
10 June 24th in 2016 near Nunivak Island. At the
11 time of the grounding, it was carrying 14 million
12 gallons of petroleum product. Within a few
13 hours, the vessel refloated and no oil was
14 spilled. There was a lot of things that went
15 right in that case that gave us the positive
16 outcomes. The master of the vessel was operating
17 with caution, traveling at only four knots, and
18 on a rising tide. Winds were calm, and seas were
19 only three feet. That is not always the case up
20 here. Let me say that again: that's not always
21 the case up here in Alaska.

22 Ironically, the area where this

1 grounding occurred was due to be surveyed later
2 this summer. There's a lot of work to be done in
3 the state, but investing in Alaska does pay off.
4 This was another instance where the rapid pace of
5 change in Alaska set the stage for what could
6 have been a catastrophic marine casualty.

7 When you last came to visit in 2012,
8 this kind of ship wasn't even found here.
9 There's always been some offshore lightering
10 activity that supports distant water fishing
11 fleets operating in the Russian waters, but the
12 use of tank vessels as part of a fuel
13 distribution logistics chain in Western Alaska
14 didn't happen on any large scale prior to 2012.

15 This slide shows a year-to-year
16 comparison of tank vessel activity in Alaska from
17 2014 to 2015. Note the dramatic expansion in
18 2015 when Shell's fleet shows up for exploratory
19 drilling. Also note the change in just one year
20 in terms of the new location these vessels are
21 going to.

22 Next slide, please. In Alaska,

1 partnerships are important, and I would much
2 rather spend time preventing those casualties
3 than respond to them.

4 The final thing I'd like to share with
5 you is the tremendous amount of support that was
6 provided by NOAA as the Coast Guard moved out
7 with our Port Access Route Study for the Bering
8 Strait. Nearly a decade in the making, ship-
9 routing measures in the form of two-way routes in
10 areas to be avoided have been approved at the IMO
11 and will go into effect this coming December. It
12 goes without saying that if the U.S. government
13 is going to tell ships where they ought to go in
14 the Arctic, we need to make sure that the water
15 is deep enough.

16 Coast Survey ships made multiple
17 transits of our proposed 700-mile long, four-mile
18 wide shipping routes to ensure they were indeed
19 free of dangers to navigation. Coast Survey
20 staff in Silver Springs devoted countless hours
21 to expedite the processing of this data so we
22 could keep the project on track.

1 This summer, the Fairweather is taking
2 a look at the final leg of the system which was
3 proposed at the last minute by the Russian
4 Federation as part of a joint proposal of the
5 IMO. I look forward to continuing this kind of
6 partnership as we expand these efforts in the
7 Chukchi and Beaufort Seas.

8 Next slide. I think that's all I
9 have. So I'd be more than happy to entertain any
10 questions or suggestions or recommendations that
11 you have, and I'll be here for much of the
12 morning and also be returning on Thursday and
13 Dave will be here for the rest of the week, so we
14 can always entertain.

15 So with that, Shep, I'll turn it back
16 over to you. Thanks.

17 RDML SMITH: Thank you, Admiral. I
18 think we do, we are running a little early, so if
19 we have any questions or thoughts for Admiral
20 Bell while we have him, we can entertain those.

21 RDML BELL: I can't believe we're
22 early. Ed, a sea story or two? I mean, come on.

1 There I was, a dark and stormy night, right? So
2 just a little bit about my background. It's a
3 really scary thought. So I started here in the
4 mid-80s, and so I was on the Coast Guard Cutter
5 Rush about 36 hours after the Exxon Valdez
6 grounded there, so I spent 90-plus days in Prince
7 William Sound post-accident. I was onboard the
8 Alex Haley when the Selendang Ayu ran out of
9 power, so I was involved in that search and
10 rescue effort after our helicopter crashed. I
11 can provide you some, I'll call it just
12 horrifying stories about what it means to leave
13 your rescue swimmer on a ship that breaks in half
14 in 40-foot seas and 90 knot winds.

15 I was down in the PAC Area staff when
16 the Kulluk came untethered and drifted ashore
17 here just a few years back. And so it seems I
18 kind of follow around with those. At least I
19 don't go back as far back as 1964. And I say
20 that because there's two things that concern me
21 most about the District Commander here in Alaska
22 is what happens when the next big thing, whether

1 that's a quake or seismic or a tsunami or
2 volcanic action occurs in Alaska. How are we
3 going to respond? And that's the partnership
4 that NOAA and I would have, talking about how do
5 you reopen any one of those channels or access
6 points to the state.

7 And then, of course, many of our
8 passengers, you know, we're expecting a million-
9 plus next year as they're coming in and out of
10 Alaska, if one of those ships catches on fire or
11 grounds, those are going to be bad days for not
12 only the state of Alaska but for the people
13 involved but for the responders, as well. And
14 those are things I kind of worry about the most
15 and you try to get out there and be preventive as
16 much as you can, and that, again, requires how
17 much visibility do you have not only in the
18 environment but what's on the bottom.

19 Yes, sir?

20 MR. GULBRANSEN: Sir, thank you very
21 much for the information. In the Integrated
22 Ocean Observing Systems world and in the

1 ecological data observations world, we find
2 ourselves having to spend a fair amount of time
3 on workforce development and getting more people
4 aware of and empowered to take on. How is that
5 in the world of response and preventiveness in
6 your area? Do you feel that you have adequate
7 feed through the university systems and through
8 the developmental programs, or is it something
9 that we could both learn from together on how to
10 increase the next generation of leaders?

11 RDML BELL: So that's a great
12 question. My first initial response to you, it's
13 really hard. Just from my perspective, at least
14 from a Coast Guard perspective on where we are at
15 in relationship to the big organization
16 headquarters in D.C., that's a long, long, long
17 way, and they're four time zones part. And so
18 when you start looking at the tyranny of
19 distance, the actual number of people that live
20 in Alaska is, you know, three-quarters of a
21 million people here, not as many as in the city
22 of New York. So that level of attention becomes

1 hard, yet anything that occurs in Alaska is going
2 to be big. I mean, that's just the nature of the
3 business. You can look at the accidents that
4 have happened, look at the interactions.

5 But I would say that the partnerships
6 that we have out there are pretty intense. So we
7 have a great working relationship with the
8 universities in Alaska, Church Kee, part of that
9 ADAC, Arctic Demand Awareness Center, the DHS
10 Center of Excellence there at the University of
11 Anchorage. We've got a good working
12 relationship. We talk on a regular time. I'm
13 actually scheduled to go up to the University of
14 Fairbanks here in a couple of weeks.

15 Improving that dialogue, discussion,
16 is required. We have numerous exercises
17 throughout the year that not only have the
18 responders, the state folks, the village, tribal
19 connections are attending that, but a lot of the
20 education networks are already plugged in to that
21 trying to help inform not only the decisions that
22 we're making but to form that way ahead as it

1 progresses.

2 Is it enough? Are there enough people
3 planning? I'd say certainly not. I mean, it
4 kind of gets back into the, you know, the more
5 maritime domain awareness that you have, the
6 better off that you'll be. But I don't think
7 we'll ever have as much information as we want,
8 especially when you look at the complexities of
9 the systems that are there now, whether that's
10 ocean systems or atmospheric conditions that
11 exist today, but they're changing so rapidly in
12 the future, how well we're going to be able to
13 predict those is going to be very, very
14 difficult, especially the further north you work
15 the less observations that we've had in the past.

16 MEMBER MAUNE: So my name is Dave
17 Maune, over here straight across from you. With
18 all the traffic in the Arctic in the years ahead,
19 I'd like to hear your opinion of the need for a
20 Port of Refuge when ship runs into trouble up
21 there.

22 RDML BELL: Yes. So a Port of Refuge

1 is always, I mean, from a sailor's perspective,
2 I'm a square-rigger sailor, did that for years.
3 So when you ask for a Port of Refuge, most of
4 those sailors will want to know where those are
5 at. If you go north of the Aleutian chain, there
6 isn't one, you know. Nome has probably, you
7 know, some type of protected access, but it's
8 very limited, especially for deep draft and any
9 of the longer vessels. Outside of that, there is
10 no Port of Refuge. The best you're going to be
11 able to be hope for is find, you know, a lee side
12 of one of the islands out there and be able to go
13 there. But that in itself isn't going to provide
14 very much refuge, especially if you're going to
15 have to make repairs.

16 I go back to my time on Alex Haley
17 when we dealt with the Selendang Ayu. I mean,
18 they're at sea, you know, going to make a repair
19 and weren't able to affect the repair before the
20 big storm came up and literally washed them up on
21 the rocks. And the intensity of that storm
22 prevented them from even arresting the ship's

1 movement at anchor.

2 So when you start talking about
3 approaches to that lee shore, there isn't one
4 that exists in Alaska. Should there be one? I'd
5 say yes. What's the investment and the level of
6 support that's going to have to do that? That's
7 going to be, that's going to be the interesting
8 challenging question, at least not only for the
9 state but industry, as well, on where would you
10 put that and what would be the best avenue to
11 make that happen sometime in the short term.

12 MEMBER MAUNE: Thank you.

13 RDML BELL: Ed?

14 MEMBER KELLY: I'm Ed Kelly, Maritime
15 Association from Port of New York and New Jersey.
16 In light of the increasing geopolitical
17 importance of the whole Arctic region, is Coast
18 Guard adequately supplied with the proper fleet
19 to manage their responsibilities for operation up
20 there? I have a particular concern with ice-
21 breaking vessels.

22 RDML BELL: No.

1 MEMBER KELLY: Thank you. I thought
2 so.

3 RDML BELL: So absolutely right.
4 That's a spot-on observation. So our Commandant,
5 Admiral Karl Schultz, has now gone on record
6 saying his strategy is 6-3-1. So he's looking
7 for a program of record of six polar icebreakers,
8 call them polar security cutters. It kind of
9 gets you focused back on a national security type
10 effort for that particular fleet. The three
11 means he wants at least three of those to be
12 heavy, and he needs one now. You know, we're on
13 a shoestring, call it that. So Polar Star is one
14 of one, a heavy icebreaker that can do that
15 mission going south to McMurdo, and Cutter Healy,
16 our medium endurance -- or our medium-capability
17 icebreaker is the only one we have doing work in
18 the Arctic right now. Both of those are needing
19 recap, and he's gone on record saying we're doing
20 that. There's some great support right now on
21 getting those authorized and working through the
22 appropriations. He's still got some work to do

1 for that.

2 Sir?

3 MR. MANLEY: Sir, Justin Manley from
4 the IOOS side. You used the term maritime domain
5 awareness, right? And that's sort of what IOOS
6 is all about. Fleets and icebreakers is a great
7 transition. You mentioned, for example,
8 terrestrial AIS. You told us a lot about the
9 demand for services. Any sort of highlight
10 stories of how some of the innovative approaches,
11 whether it's high-frequency radar or better
12 models, can you give us any examples or insight
13 as to how sort of new tools and approaches are
14 helping you do your job in this large domain that
15 you're overseeing?

16 RDML BELL: So great question. So new
17 tools. I mean, the terrestrial AIS that we've
18 had, we've got a great information exchange. I
19 mean, we use the Alaska Marine Exchange
20 information to help us feed our information
21 system. You know, ironically, and Ed could give
22 you the real specific details, Southeast Alaska,

1 South Central Aleutian chain, I'm doing pretty
2 good on information that's available from those
3 terrestrial positions. But when I start working
4 north of Dillingham up the western coast of
5 Alaska to the North Shore, I don't want to say
6 I've got nothing but it's really far and few
7 between so very limited access there.

8 They're still trying to continue to
9 improve their footprint and that's an outreach
10 that they're doing. We'll take advantage of
11 those connections.

12 From a Coast Guard perspective, when
13 we start doing operations out of Kotzebue, so we
14 put two helicopters up there seasonally to deal
15 with mostly the subsistence hunting, commercial
16 fishing in and around the small villages there,
17 our ability to communicate with them is limited
18 so there aren't a lot of VHF, you know, towers,
19 if you will. We established one up at Utqiagvik
20 in summertime but, beyond that, we've got no
21 capabilities there.

22 We're looking at putting up a couple

1 of CubeSats here later in November. We're going
2 to try to test a couple of different mechanisms,
3 systems, to be able to communicate with folks on
4 the water and in the air.

5 That's new and challenging if we can
6 put up a whole bunch of those. But as soon as
7 you start adding up the price tag up for each of
8 those and looking at the rocket shoots, to put
9 something in polar orbit is very, very expensive
10 for a Coast Guard budget. It would be great to
11 say, "hey, we've put up a lot," but, from a
12 reality standpoint, that's likely not going to
13 happen. Partnering with other folks and trying to
14 take advantage of those systems will be the key
15 moving forward.

16 RDML SMITH: Thank you, Admiral Bell.
17 It's been a great discussion. I do want to
18 acknowledge that Admiral Gallaudet, NOAA's Acting
19 Administrator, has just arrived.

20 And so, welcome, Admiral Gallaudet.
21 We've been talking about you already quite a bit
22 this morning, Blue Economy and that sort of

1 thing. And Admiral Gallaudet will be offering
2 remarks to the HSRP tomorrow morning. So,
3 welcome.

4 RDML GALLAUDET: Yes. Thank you.

5 RDML SMITH: The Lieutenant Governor
6 is our next speaker, and he will be arriving
7 soon. I do not think he's here, right? And we
8 do have another acknowledgment from Senator
9 Murkowski and Senator Sullivan that we can cue up
10 by video while we're waiting.

11 (Video played.)

12 RDML SMITH: Thank you, Senator
13 Murkowski and to Senator Murkowski's staff, for
14 getting us a really great supportive video for
15 us.

16 I do want to welcome Lieutenant
17 Governor Byron Mallott. And Heidi Hansen. Is
18 Heidi here, as well? And to welcome you to our
19 joint panel this morning. The HSRP and IOOS
20 advisory committees are thrilled you could join
21 us.

22 The goal of the meeting this week and

1 the reason we're here in Juneau is to ensure that
2 the recommendations of these two federal advisory
3 committees reflect the concerns of all Alaskans.
4 Having elected officials, representatives, and
5 state officials here is a tremendous opportunity
6 to help us realize that goal. So, thank you.

7 So, without further delay, I'm pleased
8 to introduce Lieutenant Byron Mallott and Deputy
9 Commissioner Heidi Hansen. As an Alaskan native
10 and clan leader, Lieutenant Governor Mallott has
11 a long history of leadership that began as a
12 young mayor of Yakutat and has continued with his
13 service to every Alaska governor since it became
14 a state in 1959. In addition to overseeing
15 elections and advising on fisheries, he's the
16 lead on issues such as transboundary waters and
17 climate change, and these topics are key issues
18 for NOAA, as well.

19 We're also very pleased to have Deputy
20 Commissioner Hansen here. NOS has an incredibly
21 strong relationship with the Department of
22 Natural Resources that touches on all the topics

1 we're discussing here this week.

2 So, without any further ado, I'd like
3 to turn the floor over to Lieutenant Governor
4 Byron Mallott.

5 (Applause.)

6 LT. GOV. MALLOTT: Thank you very much
7 for being in Alaska. As I understand it, it's
8 been a while since this review panel has met
9 formally in our state, and for that meeting now
10 we thank you.

11 This must be a tough crowd.
12 Typically, even with a video, the Senator gets
13 applause in Alaska. I was like, whoa, what am I
14 walking into here? Certainly, Senator Murkowski
15 and our delegation are in constant touch with the
16 Department and with NOAA. The work that you do
17 in all of your various agencies and institutions
18 are hugely important to our state.

19 I want to reflect just for a moment.
20 I went to boarding school in Sitka at a time when
21 Alaska's villages did not have high schools. And
22 a lot of us literally grew up in boarding

1 schools. And I remember as a senior two friends
2 of mine from Sitka, Alaska native young men -- I
3 can't recall the names of the vessels. I think
4 there were two that they were old wooden vessels,
5 beautiful. At the time, I called them ships.
6 They were big vessels relative to those that
7 typically served our state, other than the
8 visitors who came through, Navy and Coast Guard.
9 And Coast Guard, of course, was here all of the
10 time, and its work is incredibly important to our
11 state and to our nation.

12 But there were two small ships,
13 wooden. And these two young Alaska native kids,
14 we called ourselves kids then, said we're going
15 to work on those boats, on those ships. And they
16 were so excited. They were hydrographic vessels.
17 They were surveyors. They were constantly moving
18 around our state charting our waters. And this
19 was at a time when not a lot of Alaska natives
20 worked for government. And for some reason, that
21 image just sticks in my mind. It was a sign of
22 hope. It was a sign of opportunity and service.

1 That was so important, and it made an impression
2 upon me.

3 And I recall those same vessels coming
4 into my small village of Yakutat as they steadily
5 went about their work charting our waters. And
6 by their very presence, in addition to the Coast
7 Guard being a beacon of service and meeting need,
8 that was so important to our communities' futures
9 and the future of our state and, of course, the
10 future of our nation.

11 And they were there also when
12 emergency needs were present assisting vessels,
13 assisting communities. I remember a NOAA vessel
14 in Icy Bay north of Yakutat. I think some of you
15 know where Yakutat is. It's a pretty remote
16 place in the Gulf of Alaska and a port of refuge,
17 as is the small bay, Icy Bay. And there was a
18 NOAA research vessel anchored.

19 And I was 18 years old and the skipper
20 of a small cannery tender and we went into Icy
21 Bay to anchor because a storm was coming. And
22 that night, a tugboat out front was in danger of

1 sinking, and the weather was horrific and that
2 NOAA vessel pulled its anchor and headed out to
3 assist that tug. And the Coast Guard flew up
4 from Annette, at the time it was the only major
5 Coast Guard base in Alaska, and dropped a pump
6 right on their deck, and the NOAA vessel escorted
7 that tug to safe waters.

8 I mention those things because what
9 NOAA and its services and responsibilities do in
10 our state is, in addition to all that you do to
11 meet your responsibilities, as Senator Murkowski
12 briefly outlined and much more, and all of those
13 things in which the State of Alaska are in
14 contact with you about, and will continue to
15 emphasize and accelerate because of the
16 importance of an Arctic becoming more and more
17 ice-free, and ultimately completely ice-free at
18 least as far as navigation is concerned.

19 In addition to all of those things,
20 everything we do as government affects people's
21 lives, affects people's attitudes, affects
22 people's spirit, affects a sense of community, a

1 sense of being connected, a sense that by the
2 services you render and the obligations you meet
3 on behalf of a federal government and agencies
4 whose funding and responsibilities and
5 infrastructure and obligations are clear and
6 designed to meet the needs of our country and the
7 places that you bring those services and meet
8 those obligations.

9 Particularly, in Alaska, in my
10 judgment, you affect people's lives in intimate
11 ways, both by what you've done in the past, by
12 what you do now, and what you will do in the
13 future to make the seas, our river systems, our
14 ports, our coasts safe and navigable. And with
15 the security and knowledge that allows not just
16 commerce to flourish but that allows everyday
17 people to go about their lives with a sense that
18 there are those who are here and we see on the
19 horizon or we see in our ports or we hear in the
20 news that are helping our lives to be better.

21 And with all that you do and with all
22 the demands that are made upon you and those who

1 give advice and counsel to leadership, I found,
2 in all of my life, that what is most important is
3 that we palpably feel and acknowledge and
4 understand the consequences, the impacts, that
5 what we do, of what we do, inform and ultimately
6 make people's lives better.

7 You deal with science. You deal with
8 research. You deal with service. You deal with
9 meeting safety. You deal with looking over the
10 horizons to meet obligations that are hugely
11 important. But at the end of the day, you serve
12 people. And I, for one, who grew up in a place
13 where that service was critical to our lives,
14 thank you so much for meeting your
15 responsibilities and your obligations.

16 Welcome to Alaska. I wish you, as the
17 Governor does, a very successful meeting and
18 godspeed and safety and success in all that you
19 do. Thank you.

20 (Applause.)

21 RDML SMITH: Thank you, Lieutenant
22 Governor Byron Mallott. I'm very sorry that I

1 butchered your first name. My dyslexia got the
2 best of me.

3 LT. GOV. MALLOTT: I love my name.
4 It's great for dealing with telemarketers. I can
5 tell the truth whenever they pronounce my name in
6 ways that I don't.

7 (Laughter.)

8 RDML SMITH: I also wanted to thank
9 you for a really poignant picture, particularly
10 of the work that my office does with hydrography.
11 I'd like to have a plaque that says "steadily
12 went about their work" because I think that that
13 really sort of captures the sort of long-term
14 commitment that hydrography takes where we're not
15 afraid to plan decades or centuries for our work.
16 So I want to thank you for your remarks.

17 Joyce, did you have anything? And I
18 think that Heidi has arrived, as well. I
19 introduced you in your absence. I apologize. Do
20 I understand that you have some remarks to share,
21 as well?

22 MS. HANSEN: I do have a few remarks,

1 although I must say I couldn't be more honored to
2 be here, and I feel a little awkward following
3 the Lieutenant Governor. His words are always so
4 poignant and meaningful. I hope that my perhaps
5 slightly more programmatic words will not be sort
6 of lost in the essence of all of the things that
7 he just shared.

8 So, my name's Heidi Hansen. I'm
9 Deputy Commission for the Department of Natural
10 Resources. I cover agriculture, mining land and
11 water, forestry, parks --

12 LT. GOV. MALLOTT: She does such a
13 wonderful job. Thank you, Heidi.

14 MS. HANSEN: Oh, thank you. Anyway,
15 there's a lot of things I cover in my portfolio
16 and a lot of them cover the areas that you all
17 are working very hard on. And I probably won't
18 speak as much to the substance of some of those
19 things as more to, as I said, the programmatic
20 things.

21 I would like to say that I spent about
22 ten years serving as a lawyer for the federal

1 government, both with the Corps of Engineers and
2 at the Army, and so I hope that nothing that I
3 say here is taken in any other way but with the
4 utmost respect and love for what you all do and
5 what your role is. And it's most earnestly said
6 with a hope of increased cooperation and
7 increased collaboration so that you understand a
8 little bit more some of our challenges and where
9 we're coming from and how we can hopefully work
10 better together.

11 So I spoke with some NOAA folks a few
12 months ago, and I was rather intimidated because,
13 to be honest, I'm not scientifically-minded and I
14 haven't spent a lot of time working with NOAA.
15 And so I wasn't exactly sure what would be
16 helpful to share with them. But I ended up
17 sharing what I can see in my vantage point, and I
18 hope that doing the same thing here will be
19 helpful to you and you can extrapolate where
20 there's a nexus in the areas that you work.

21 So, what am I familiar with? I'm
22 familiar with, as I said, the mining land and

1 water portfolios, forestry, parks, agriculture,
2 permitting, project management, and budget for
3 the state, for the Department of Natural
4 Resources. I'm familiar with the vast and
5 plentiful resources of our state and untapped and
6 untold resources that we work very hard every day
7 to try to realize to benefit Alaskans.

8 I'm familiar with high costs of energy
9 that make living in our state astronomically
10 expensive for some and prohibitive for some
11 natural resource extraction and production. I'm
12 familiar with mines that, at the beginning of
13 their operations, we believe have 12 years of
14 operational life, and at 25 years they could not
15 be going stronger because we found another vein
16 that we haven't tapped.

17 I'm familiar with 105 million acres of
18 land that the state manages. 105 million acres.
19 We have the largest state park in the country.
20 We have vast resources and innumerable elements
21 to those lands that we try to leverage every day.
22 I'm familiar with the natural resource benefits

1 that Alaskans enjoy, such as subsistence and
2 hunting resources, minerals, timber, renewable
3 energy resources.

4 And I'm very familiar with a greater
5 need that we have to understand our landscapes
6 better, to understand potential hazards, to
7 understand even more so our mineral potential and
8 our general topography.

9 I'm familiar with our agricultural
10 industry. No one thinks of Alaska and
11 agriculture, but one day you will. And if any of
12 you have weddings planned in August sometime, we
13 have fabulous peonies we'd like to send you.

14 I'm very familiar with our challenged
15 access to use and work our land, limited entrance
16 and exit points. All of the work that you all do
17 with ports is very important to us, and we would
18 like to collaborate more with you so that we can
19 greater benefit from an increased blue economy in
20 that regard.

21 You'll often hear that Alaska is
22 special and deserves unique treatment. It's not

1 some quippy tagline that we're trying to demand
2 federal attention undeservedly. We are so
3 grateful that you are here so that you can
4 experience some of this yourself personally, but
5 I think everything that the Lieutenant Governor
6 said sort of imparts upon you how special we are
7 and how unique we are and how challenged we are
8 to access, and how challenged we are and the
9 needs that we have with regard to our
10 navigational resources and being able to
11 transport ourselves and our goods and be able to
12 live and support ourselves in a very general
13 manner.

14 We're a very small state, yet an
15 enormous state. We have big needs and modest
16 quantities of resources, but we have big
17 thinkers, creative minds, and people dedicated
18 and committed to the betterment of Alaska.

19 So, as you work with Alaskans and as
20 you work on issues that affect Alaska, I would
21 ask you to sort of keep two words in mind when
22 you do that: agility and receptivity. Our state

1 public servants know their state better than
2 anyone else. I would ask that you engage with
3 them earnestly and trust the information that
4 they provide you. You can trust, but verify;
5 that's fine. But I would ask that you trust and
6 work with them and listen to the information that
7 they provide and incorporate the information and
8 learn from your engagement with the state.

9 You know, there have been instances of
10 inaction because something doesn't fit a mold or
11 a square peg doesn't fit into a round hole. That
12 inaction really hurts Alaskans. It really hurts
13 our country in larger ways, but it's part of why
14 I ask for such creativity when we're working
15 together.

16 Our public servants are more
17 intimately familiar with and invested in Alaska.
18 We have a lot of federal rights that are specific
19 to Alaska, and Alaskans are very interested in
20 understanding those and supporting the rights of
21 Alaskans and the rights of our access and use of
22 our land, and we need your help in being able to

1 realize that.

2 There are a lot of federal regulations
3 that, by necessity, blanket our country, but
4 sometimes are short on practicality when you're
5 trying to implement them in a place like Alaska.
6 And so one thing that I would ask is that you
7 make your regulations as flexible as you can --
8 without being unreasonable, obviously -- and give
9 the folks on the ground that you have working for
10 you the authority to analyze thoughtfully and
11 make decisions that work and are pragmatic for
12 Alaska.

13 Touching again very briefly on
14 Alaskans, they're very earnest and hardworking
15 people. Our public servants are the most earnest
16 folks that I've ever worked with. And when
17 they're working with you, if they ask for X it's
18 because they need X. They're not hedging their
19 bets. They're not expecting you to come back
20 with X-minus-ten. We need X, and we'll explain
21 and we'll share with you why and we'll work with
22 you. And just know that we're not trying to ask

1 for anything more than what we need. It's a big
2 state, and we just need some flexibility and we
3 need to be able to work with you.

4 So right now, in particular, we have
5 an amazing opportunity to increase our
6 cooperative federalism. And I would really ask
7 that each and every one of you think hard about
8 how we can contribute to that effort and how you
9 might be able to increase engagement with state
10 and local folks to enhance that opportunity.

11 We've seen this administration work
12 cooperatively with Alaska to propel some really
13 major policy developments forward, and it's very
14 exciting. It's exciting for the country, it's
15 exciting for the state, it's exciting for the
16 individuals that live nearby those opportunities.
17 And we can do more of that, so much more of that.

18 You know, Alaska has a very steep
19 history of cooperative federalism because of the
20 nature of when we came about and how we came
21 about and the place in our country when Alaska
22 came online as a state. The state will welcome

1 any opportunity that we have to cooperatively
2 engage with the federal government.

3 And as I've said before, the state
4 public servants stand ready to roll up their
5 sleeves and work with you and get creative. If
6 we help each other, we'll all be better off.
7 Let's build our trust. Let's expand our existing
8 working relationships. Let's leverage our
9 respective dollars that seem to be increasingly
10 diminishing across the board.

11 One example of this kind of effort,
12 but there are many opportunities out there, is
13 the Alaska Geospatial Council. It's a venue
14 where we share data and leverage resources and
15 collaborate on mapping efforts that benefit many
16 federal agencies, the state, native corporations,
17 individuals. I see great potential for more
18 opportunities like the Geospatial Council, areas
19 in which we all need to require and collect more
20 data. We all need to have weather predictions
21 for things, everything from subsistence hunting
22 to erosion control. Increased blue economy, as I

1 stated before, hazards monitoring and assessment.
2 There are limitless ways that we can work
3 together, and I very much look forward to that
4 opportunity.

5 And one last principle I'd like to
6 leave you with is that it's really easy to say
7 no. It's harder and more purposeful to say yes.
8 We need you to say yes often, and I'm not asking
9 for a yes where it skirts legal or ethical
10 principles. I'm not asking for a yes where it
11 defies sound principles of science. But I'm
12 asking for yeses where it serves principles of
13 pragmatism, when it demands creative thinking and
14 perhaps standards that apply differently in
15 Alaska but that nevertheless produce constructive
16 results. Yes where it benefits Alaskans, yes
17 where it benefits the state, where it benefits
18 the country, and where it benefits our
19 international efforts.

20 So thank you so much for letting me
21 speak for a few moments here. I really
22 appreciate the opportunity and I look forward to

1 meeting anyone that I have the opportunity to do
2 so during the breaks. Thanks.

3 (Applause.)

4 CHAIR MILLER: Thank you, Heidi, and
5 thank you for the state of Alaska showing up in
6 such force here. This is probably the biggest
7 meeting I've seen in eight years, so it's great.

8 Admiral, do you have any comments on
9 these --

10 RDML SMITH: I do. I mean to catch
11 Heidi before she leaves the room, because I was
12 really inspired by a few of your key adjectives.
13 You talked about creativity, flexibility,
14 pragmatism, getting to yes. And I think that
15 really resonated with me, with a lot of the
16 approaches that we're taking to meeting some of
17 the challenges in Alaska that simply can't be
18 solved the way that we have solved them in other
19 parts of the U.S.

20 So, thank you. I think that was a
21 really key insight. So, thank you.

22 And I think we have one more. We've

1 been jumping around a little bit on our agenda
2 this morning, but we have one more video to play
3 before the break.

4 (Video played.)

5 (Applause.)

6 CHAIR MILLER: Yes, we did clap for
7 that one. Okay. It's now time for a break. It
8 is 10:28. I ask you all to be back in your seats
9 by 10:45.

10 (Whereupon, the above-entitled matter
11 went off the record at 10:29 a.m. and resumed at
12 10:51 a.m.)

13 CHAIR MILLER: Please take your seats.
14 Welcome back to the second morning session of the
15 HSRP/IOOS meeting. Admiral Lautenbacher wanted
16 to say a few words regarding the Lieutenant
17 Governor's talk.

18 VADM LAUTENBACHER: Thank you very
19 much. Is this one? It is? Okay. It's hard to
20 tell.

21 I keyed on making this comment because
22 of the fact that no one clapped after Senator

1 Murkowski gave her speech, okay? And I want to
2 make sure that everybody in this room, because
3 this is a very -- as I mentioned before, I've
4 never seen this many people together in Alaska
5 talking about these things together, and it's
6 important because Alaska is an important state.
7 And we have had, inside of NOAA, a special
8 relationship with Alaska for as long as it's been
9 around. I'm sure you understand that.

10 Senator Stevens. And I can remember
11 standing with Senator Stevens at an opening of
12 something down here, I can't remember what it
13 was, and introducing then-candidate Murkowski to
14 become the senator. And it was a groundbreaking
15 thing, and Senator Stevens always supported us
16 very well, and I think the people in NOAA
17 understand what difficulties there are and what
18 importance there is to the state of Alaska and
19 the types of economic activities and natural
20 resources and all of the things that make it a
21 very important part of the United States.

22 And it's a hard area for NOAA to work

1 in because it's got a lot of space and a lot of
2 issues with the atmosphere and the ocean, but
3 it's always been a strong relationship and I
4 wanted to make sure that I expressed that to the
5 Governor, to the Lieutenant Governor, and to
6 everybody in this room that has supported that
7 relationship for the time that I have been around
8 as a Pacific sailor and also the commander of the
9 3rd Fleet and responsible for these waters up
10 here for defense.

11 Alaska is very important and Alaska
12 has always supported us. In fact, I just talked
13 to Senator Sullivan, I don't know, three months
14 ago about fishing issues. So we're still working
15 hard, even for people like me that don't have any
16 control over anything anymore.

17 But I can tell you that it's a special
18 deal. And I'm sure I speak for a lot of the
19 NOAA, if not for all of the NOAA people, that
20 realize what that is and thank you, thank the
21 state people for the hospitality we have today
22 and for the relationships that's gone on. And

1 so, yes, we should have clapped for Senator
2 Murkowski. That's my view. Thank you very much.

3
4 (Applause.)

5 CHAIR MILLER: Thank you, Admiral.

6 I'll now turn the meeting over to Rich Edwing and
7 Julie Thomas to introduce our joint IOOS/HSRP
8 panel for this morning.

9 MR. EDWING: So, good morning,
10 everyone. Again, I'm Rich Edwing. I'm the
11 Director of the Ocean Service Center for
12 Operational Oceanographic Products and Services,
13 or, again, Tides and Currents is the easier way
14 to say that. I'm here to introduce and share the
15 panel -- you can't hear me? It's lit up.
16 Closer? All right. Better? Okay, all right.

17 But before I do that, I'd first like
18 to introduce Julie Thomas, who is well-positioned
19 to be our moderator today, as she said earlier.
20 She's an HSRP panel member, as well as spent many
21 years as the Southern California Ocean Observing
22 System director, and manages the Coastal Data

1 Information Program and other things, as well.
2 And I think we're going to hold off on
3 introducing the other panelists until I turn it
4 over to Julie and move into that part of the
5 session.

6 So it's certainly exciting and honor
7 for me to be chairing the first joint HSRP/IOOS
8 session, if you will. And I think the topic,
9 water level partnerships, was a very appropriate
10 topic that was selected for us, because water
11 level is a very, I'll say common, if you will,
12 observation. Or water level information is
13 really needed pretty much any coast you're on.

14 And that's because it's got many, many
15 different societal benefits. It helps support
16 maritime commerce, storm surge and tsunami
17 warnings, habitat restoration, you know, sea
18 level trends for long-term coastal planning, and
19 so forth. So, there's a lot of interest in it,
20 and, you know, people always want more
21 information.

22 And also, here in Alaska, as we know,

1 particularly in the Arctic, it's a data sparse
2 state. You know, water levels isn't the only
3 environmental parameter that I'm sure that is
4 needed up here, but, again, certainly, I think
5 it's one of the more essential observations, and
6 the products are some of the more central
7 products that may be needed.

8 And like other areas, you know, people
9 get together and partner to make things happen.
10 You know, people get together to put together
11 limited resources to maximize the information
12 that can be acquired and used and to help make
13 good decisions.

14 So I'm going to start off today by
15 talking a little bit at the national level,
16 talking about the national water level program
17 operated by NOAA. It's got a long history of
18 providing timely, accurate, and reliable data.
19 It's a trusted source for Tides and Currents
20 information. And then I'm going to turn it over
21 to the panel, and they're really going to talk to
22 you about, you know, why they need water level

1 information, how they use it, and how we're all
2 working together to try to get, you know, more of
3 that information available to people up here in
4 Alaska.

5 So, the National Water Level
6 Observation Network is the observing system
7 behind the program, right? We have 210 long-term
8 stations. We don't call them permanent because
9 Mother Nature and the coast don't like the word
10 permanent. We do the best we can. And all these
11 stations, of course, continuously monitor water
12 level and water temperature, and most of them
13 also have meteorological instrumentation
14 associated with them, as well.

15 A number of these have data series
16 going back over a hundred years in length, and
17 really most of them have data series that are at
18 least a climactic value of over 30 years, which
19 is when we started generating sea level trends
20 from those.

21 And I should also mention that the
22 NWLON was one of the 15 U.S. government-operated

1 Earth observing systems that were highlighted by
2 a White House report done in 2014, the Office of
3 Science and Technology Policy program. That's
4 considered a high-benefit, high-impact observing
5 system, along with satellites and radars and
6 things of that nature.

7 And, of course, the observing system,
8 it's hardware, right? And hardware is
9 interesting, but the real value is in the
10 information that comes out of it. And the most
11 foundational purpose of the NWLON is to provide
12 the water level reference system for the nation,
13 tidal datums along the coast, and IGLD,
14 International Great Lakes Datum, up in the Lakes.
15 About a quarter of the network is up in the
16 Lakes. Because you have to have a reference
17 system to know where you're starting from to be
18 able to communicate, describe, use water level
19 information.

20 And, of course, hand-in-hand with that
21 goes the sea level trends, because every so often
22 we have to update the datums to account for

1 changes in sea level rise along the coast and
2 other variabilities up in the Great Lakes. And a
3 subset of the NWLON, about 25 stations, are the
4 U.S. contribution to GLOSS, which is an
5 international organization that ensures that tide
6 gauge networks around the world are operated at
7 certain standards so that we're looking at
8 apples-to-apples data comparisons for
9 understanding global sea level rise.

10 And so that's the NWLON, but I should
11 mention that there's also about another 100 long-
12 term partnership stations around the coast that
13 we partner with other organizations for. About
14 half of those are operated through the PORTS, our
15 Physical Oceanographic Realtime System program.
16 About another 25 or so are operated through the
17 Texas Coastal Ocean Observing Network down in
18 Texas. Panel members who were at that meeting
19 may remember some discussion of that. And the
20 rest are through other smaller partnerships. So
21 there's about another 100 stations out there long
22 term.

1 In any given year, we're putting in 25
2 to 50 short-term tide gauge deployments for
3 hydrographic surveys, VDatum projects, habitat
4 restoration projects, a whole variety of those
5 applications I talked about earlier, and all that
6 information comes in.

7 So let's talk about the NWLON in
8 Alaska. In Alaska, we have about -- well, we
9 have 27 stations, ten of which are in the Arctic
10 as defined really north of the Aleutian chain.
11 This graphic was taken from a gaps analysis
12 report that we did back in 2008 where we tried to
13 define how many water level stations we needed
14 based upon the vertical control that they can
15 provide.

16 And so the little green areas with the
17 red dots in the middle, those were existing NWLON
18 stations. And that's the span of vertical
19 control, that green area, that they can provide.
20 And those darker purple areas are gaps in the
21 system.

22 So I should mention 27 and 10 are

1 going to go down by one because we had a station
2 at Port Moller, the pier was destroyed by a fire
3 last year, and we're going to be unable to
4 reestablish that station. So those numbers go
5 down by one.

6 Around the nation, we have 111 coastal
7 NWLON gaps. But you can see most of those are up
8 here in Alaska with 32 being in Alaska, 21 in the
9 Arctic. And so there's, roughly, you know, a
10 quarter to a third of our gaps are here in
11 Alaska, and that's just by the numbers. We did
12 actually look at kind of the square miles that
13 these areas cover. When we look at the square
14 miles of the gaps, over 85 percent of our gaps
15 are in the Arctic.

16 So I mentioned earlier we do short-
17 term deployments. And certainly we do those up
18 here in Alaska, as well, for a number of, again,
19 different applications. There's 242 historic
20 locations where we don't have gauges operating,
21 but, because of the data we've collected, we can
22 put out tidal datums, predictions. And we have

1 the data available, typically, one to three
2 months in length. Some of them have gone longer.

3 And I had this little table put
4 together on the right-hand side, and you can see,
5 really, not much, if any, activity prior to 1980,
6 and, really, just in the last two decades we've
7 had the bulk of these deployments occurring. A
8 lot of that has been through the increased
9 surveying being done by Coast Survey and, you
10 know, other reasons, as well. And I know people
11 are going to add up that column and it's going to
12 add up to more than 242, and that's because some
13 of these gauges have straddled decades. So
14 there's the answer to that.

15 But the other thing I wanted to point
16 out is you can significantly reduce the
17 uncertainty of a tidal datum by comparing that
18 short-term data series with a long-term data
19 series from an NWLON station, because you can get
20 rid of, or certainly reduce, a lot of the
21 seasonal and annual variations that that short-
22 term series may have in it. Again, that's

1 another way that the NWLON's used to help elevate
2 the accuracy of these shorter-term stations.

3 Next, I thought I'd talk a little bit
4 about the challenges of actually acquiring
5 information in the Arctic. As I said, we're only
6 up here in now nine locations. A lot of that is
7 just because of the remoteness of the area. A
8 big factor is just a lack of just physical
9 infrastructure. We like vertical surfaces, like
10 piers and bulkheads and things to attach our
11 equipment to. There's not a lot of that in the
12 Arctic. And, of course, the other big factor is
13 the ice. You know, that grinding ice which tends
14 to just take away anything you try to put in the
15 water.

16 Along other coasts, and even really in
17 lower Alaska, we don't have too much of a
18 problem. But our standard method of putting in a
19 station is to have two sensors, two water-level
20 sensors. One is just for pure redundancy. We
21 try to get continuous data series. But we also
22 use different technology sensors because every

1 technology has pros and cons and we try to use
2 the pros of the second technology to offset the
3 cons of the first technology.

4 So, in most places, we're
5 transitioning away from acoustic sensors to radar
6 or microwave water level sensors as our primary
7 water level sensor. And then we use a fairly
8 inexpensive pressure sensor as our back-up
9 sensor. However, that doesn't work up in the
10 Arctic because of the acoustic and the microwave
11 either won't survive or they can't measure
12 through the ice, so we use something called a
13 dual-digibub, which is actually two pressure
14 sensors. And we can put those orifices down and
15 armor them in behind steel plating, typically on
16 a bulkhead, so that they'll survive the ice and
17 operate year-round.

18 And we use two, not just for
19 redundancy. You know, pressure measurements you
20 have to adjust for salinity, so we put those
21 orifices in and measure them precisely the
22 difference between those, and we can compare that

1 measurement to what we're actually measuring and
2 adjust for salinity.

3 So this is how we do most of the
4 measurements up in the Arctic, most of the
5 stations there, and even a few down below the
6 Arctic in Anchorage and Nikiski, particularly,
7 because they have significant ice issues.

8 I'll just point out one other station
9 in the Arctic, Prudhoe Bay, where, thanks to the
10 oil industry building and bringing over a billion
11 dollar desalinization plant, sinking it in place,
12 building a long gravel causeway out to it. The
13 desalinization plan has big bays that are always
14 open to the water, and we're able to put our
15 microwave sensor in there and measure inside the
16 bay and have our pressure sensor outside the bay
17 to get our measurements there.

18 But there's really very few locations
19 in the Arctic where you have this sort of
20 infrastructure that we're not already operating
21 at. So that's really one of the biggest
22 challenges for us for getting long-term

1 measurements.

2 So a number of years ago, really a
3 decade ago, it looked like there was going to be
4 a big push for NOAA to do a lot more work of a
5 lot of different types up in the Arctic, again
6 because of the retreating sea ice and the opening
7 up of the area to different types of economic
8 uses. So that kind of scares us, because you can
9 give us a lot of money but we really didn't have
10 the ability to put a lot of tide stations up in
11 the Arctic.

12 So we started developing another
13 approach, which is this offshore capability. And
14 we started off with just that bottom part, which
15 is just a sled, if you will. And it's got some
16 pressure sensors on there and conductivity
17 sensors and it had some acoustics modems at the
18 time. And I think it was around 2007-2008
19 timeframe we deployed that and we got 18 months
20 of data off a barrel, so it was a pretty
21 successful test. We were pretty happy with that.

22 But as we continued to refine it,

1 people were also saying, "well, we really want
2 that realtime data, as well." So we started
3 developing a method of attaching a buoy to that,
4 bringing the data up that way, adding cement
5 sensors and doing some other things. And we've
6 been continuing to develop this, and we've gotten
7 it to Technology Readiness Level 6, but we had to
8 put a pause on it and put it on a shelf because I
9 think, as we all know, a lot of that big push and
10 resources we thought were going to materialize to
11 do a lot of this work never really happened.

12 So we kind of put this on the shelf
13 for right now because until we can actually
14 operate it, it doesn't make much sense for us to
15 take it the whole way to the end of the line, but
16 we can certainly pick this up if needed.

17 So my last two slides is really just
18 talking about the partnerships that we have up
19 here in Alaska. And this first slide is about we
20 have partnerships where we're getting data to our
21 standards and generating our standard products
22 and services. And, again, you know, obviously,

1 we work closely with Coast Survey and NGS for
2 doing tide gauging for hydrographic surveying.
3 It's not necessarily my office doing it. You
4 know, for their surveys, it's their contractors
5 doing that. They're getting us the data.

6 For VDatum surveys and for other types
7 of projects up here, we're doing a lot of
8 shorter-term stations. The Office of Coastal
9 Management is funding three stations being
10 established up here in Homer, Gambell, and I'm
11 not even going to try Kwigillinok. I'm sure I
12 mangled that. There we go. Thank you. To help
13 provide datums for local coastal communities.
14 And that's being done through one of the
15 contractors that we use.

16 We work at the Weather Service. The
17 Weather Service funded the establishment of a
18 long-term station at Unalakleet, which is an
19 Arctic station and has a bulkhead that we can put
20 in that dual-digibub sensor. And they funded the
21 establishment of that in the first few years of
22 operation and maintenance, and now we've taken

1 that over as an NWLON station.

2 We work all over with the Corps. The
3 Corps does a lot of work, and they're doing some
4 projects up here. And whenever they do a
5 project, you know, they're doing it to our
6 standards and we get that data. They're doing
7 something up in Barrow right now.

8 And Park Service we have a nice
9 program with where, again, around the country
10 they're establishing long-term tide stations
11 because they want sea level trends because
12 they're concerned about vulnerabilities of some
13 of the natural resources they have stewardship
14 responsibilities for. And they're doing one up
15 here in Chiswick Island which is on the western
16 side of Cook Inlet, I believe. And the
17 illustration is showing Unalakleet.

18 So those are the partnerships that
19 we're directly involved with for data to our
20 standards. But now what you're going to hear
21 about -- and I'm not going to get too much into
22 this, otherwise I'll be doing their presentation

1 for them -- is our three panelists here will be
2 talking to you, you know, why they need water
3 level data, how they're using it, how they're
4 partnering together and with us to get more water
5 level information.

6 You know, not everybody needs water
7 level information to NWLON's standards, and so
8 they don't need to do things to NWLON's standards
9 because, you know, typically that costs more
10 money than they need to spend. So we're all
11 working together to look at those things and
12 still partner -- we still, you know, AOOS has
13 been a big, probably one of our most robust RA
14 partners in terms of partnering on water levels
15 and looking for new ways to do things and so
16 forth.

17 So, at this point, I'm almost going to
18 turn it over to Julie, but, before I do that, I
19 also want to mention you can also pencil NGS in
20 here as a partner, because one of the challenging
21 parts of water level measurements is, besides
22 collecting continuous water level information,

1 you have to do these periodic geodetic, you know,
2 observations to ensure your sensor isn't moving,
3 to connect your sensor to your benchmarks, to
4 connect your station to the National Spatial
5 Reference System, other reference systems. And
6 that can be a challenging process.

7 And I'm going to say I think Nic
8 Kinsman is here in the audience, and I actually
9 haven't had a chance to meet her directly but I
10 know she's been a stellar partner up here in the
11 area for this group of partners. And she's been
12 a stellar partner for CO-OPS, as well, because
13 she's been helping us with some other GPS
14 modernization efforts we have underway, which
15 actually I talked at the last panel about.

16 So I'm going to conclude here and turn
17 it over to Julie. We are holding questions until
18 the end. So, thank you.

19 MS. THOMAS: Thank you, Rich. It's
20 great to hear about the partnerships and the
21 overview of the water level stations in Alaska.

22 So I'd really like to thank this panel

1 here this morning. We have this excellent panel
2 that has been put together, and we're just so
3 thrilled to have them. Each one of them is an
4 expert in their own right for what they're
5 working on.

6 Our talks will be about 15 minutes.
7 At ten minutes, you will receive a timer. Ed's
8 going to do that. So you'll get the ten-minute
9 signal. We're going to try to hold the talks to
10 15 minutes because we're going to save all the
11 questions and discussions until afterwards. So
12 we're hoping that that will keep our meeting
13 flowing this morning.

14 First of all, I'd like to introduce
15 Don Moore. He's going to be our first presenter,
16 and we have a big thanks to Don. He's filling in
17 for Carven Scott at the National Weather Service.
18 Carven could not make it at the last minute, so
19 Don flew in this morning from Anchorage. He is
20 the Director of Operations for the NWS in Alaska.
21 Don, thank you very much.

22 MR. MOORE: Thanks you. Good morning.

1 It is an honor to speak, especially first. I
2 would have preferred to follow everybody else.
3 Actually, I'm pretty comfortable up here because
4 I am sitting next to what I would consider two
5 very good friends of the National Weather
6 Service, both Jackie and Molly. We work very
7 well together. I first met Molly in 2009 when I
8 came up here. I came up as the marine program
9 manager, and so this is an area that, right when
10 I got to Alaska, was something that was near and
11 dear to my heart.

12 And I think the partnership and the
13 closeness that we have is quite good. I think if
14 somebody were to tie our legs together and make
15 us walk across the street, we could probably do
16 it and it wouldn't be uncomfortable. And that's
17 kind of the way I look at how we work together.

18 So, go ahead and go to the next slide.
19 Oh, I got it. All right. I'm in charge. Okay.

20 So this is a map that we like to show
21 for all the people that have seen the United
22 States with Alaska and Hawaii in the lower left-

1 hand corner with both those two states about the
2 same size. Obviously, Alaska is a big state,
3 which we all I think here in this audience know.
4 But the challenge here is if you look, if you
5 really look closely at the coastline of Alaska,
6 it's not straight. It's not like the West Coast
7 or the East Coast. I mean, yes, there's curves
8 on both coasts, but not like the west coast of
9 Alaska.

10 And that presents a really difficult
11 forecast challenge, because when you have a
12 coastal threat, or any kind of inundation threat,
13 it's not going to be equal everywhere. There's
14 going to be drastic changes over very short
15 distances, which make it very difficult to
16 forecast. Now, on top of that, we're resource
17 challenged, which makes it even more complicated.

18 So I'm going to tell a fictitious
19 story about Carven, since he's not here. And the
20 point of this story is going to be to try to get
21 an idea of what it's like to actually forecast in
22 the state of Alaska with the resources that we

1 have.

2 So, Carven, as he describes himself,
3 is born Texan, Alaska by choice. So, Carven was
4 in Texas visiting his family. The radio station
5 was having a contest of who was going to get to
6 go see the Dallas Cowboys play at Lambeau Field
7 in Green Bay, Wisconsin. He won. They told him
8 on Thursday morning, show up to the radio station
9 in Midland, Texas, and it's an all-expense paid
10 trip to Green Bay to watch them play.

11 So Carven shows up Thursday morning at
12 the radio station in Midland, Texas. And if you
13 were to look on that map, it is, you know, on the
14 western part of the Alaska peninsula. And they
15 tell him he has to drive, not fly, drive to Green
16 Bay. So Carven is a little shocked, but, "Okay,
17 I can do it."

18 They also tell him you've got to pick
19 up some other contestant winners along the way.
20 If you look at the map, we're going to follow the
21 coastline. We'll go to Oklahoma City, and we're
22 going to go to Goodland, Kansas. Then we'll go

1 to Sidney or the panhandle of Nebraska there
2 where St. Lawrence Island is. And then we'll
3 drive over to Omaha, we'll pick up somebody in
4 the Badlands, a park ranger, and then we'll go to
5 Sioux City and then we'll go to Minot, and then
6 you go to Green Bay.

7 And Carven, he's got this great deer-
8 in-the-headlights look. If you've ever seen him,
9 he just does this. So that's what he does. And
10 he goes, "But I drive a Prius. So there's no
11 way. That's a lot of people to fit in a Prius.
12 I don't think I can do this. How do I do this?"

13 Well, he was allowed to take two
14 friends with him, so he brought Jackie and he
15 brought Molly. He looks at Jackie and goes,
16 "What kind of vehicle do you drive?" and Jackie
17 drives a two-door pickup truck. And he looks at
18 Molly and goes, "What do you drive?" and she
19 goes, "Well, I got a fifth wheel." So they put
20 their heads together and decide that Jackie is
21 going to drive her truck and we're going to pull
22 a fifth wheel and we're going to get there.

1 And they drive along the way, take
2 turns driving, and they're able to get there in
3 time to see the game on Sunday.

4 That's really how it's like to work as
5 a forecaster here, is you have this thing that
6 you're trying to do, you don't have the resources
7 to do it, but you really, really want to do it
8 and you want to do it well. And so you partner
9 with different people and you try to get it done,
10 and I think that's kind of the story that we have
11 with Molly and Jackie and the work they do, and
12 many people in this room.

13 So I'm trying to get my order of when
14 I want to talk about something. But let me go
15 back to this slide, and I'll keep talking on this
16 one. Hopefully, I'll get done in the right
17 amount of time.

18 So I'm going to tell a personal story.
19 2011 we had what I think was deemed the
20 Snowicane. I think that was the term they used.
21 There was this big monster storm that came up in
22 the Bering Sea and it went straight through the

1 Bering Strait. Unheard of. It doesn't do that.
2 It ended up being, I think, the pressure on the
3 level of a Cat 2 hurricane. This was unheard of,
4 because usually when you have a coastal threat
5 it's for a small portion of the coastline,
6 because, again, the winds are very important,
7 where the water is going to go is relative to how
8 the storm is coming in. And so normally you
9 don't have widespread concerns. It's for a
10 portion of, say, Norton Sound or Kotzebue Sound
11 or something to that effect. But this one was up
12 and down the whole west coast, and it was
13 extremely complicated because the coastline,
14 again, it's not straight.

15 I was in the state emergency
16 operations center for that event, and they took a
17 phone call from Gullivan. Gullivan was in dire
18 straits. They were concerned about having to
19 shut their power off because the water was going
20 to get up to where their power supply was, and
21 they didn't want it to get inundated while it was
22 on. So they were trying to struggle with do I

1 shut the power off to the community, which means
2 that there is going to be no heat; and, of
3 course, ahead of major storms like this, it
4 actually starts off as a blizzard. You get a
5 blizzard first, and then you get the coastal
6 inundation threat.

7 So do I shut the power off with the
8 cold air, you know, in and around when a blizzard
9 was occurring and have the people evacuate to
10 another location, which means they're going to
11 have to go out in the elements and evacuate? So,
12 a big deal.

13 And I took the call. It wasn't an
14 easy answer because we don't have a lot of
15 observations. We don't have, especially back
16 then, the modeling for what the water is going to
17 do. The resolution is not very good. It is not
18 capturing all of those little nooks and crannies
19 of the coastline.

20 So, fortunately, I had some model
21 guidance that included some tidal information.
22 Now, Gullivan, if you were to look on

1 tidesandcurrents.noaa.gov, Gullivan is not on
2 that map. But the modeling data, it had some of
3 that information in there. So it was showing
4 when things were peaking and whatnot.

5 Well, when I was on the phone with
6 them, they told me, you know, we don't have any
7 observations. So I'm like where is it at, how
8 far do you think, how much do you have to go?
9 And he tells me about how far he's away, and I
10 looked at the data and I took the best guess I
11 could. And I said, you know what, I think you're
12 at the worst of it right now, I think you'll be
13 fine.

14 And I was lucky and, fortunately, they
15 were and the water level hovered for that little
16 while longer and then an hour later they said it
17 started receding, and I was like, whew, good.

18 So, you know, we didn't have the Tides
19 and Currents, but we had it embedded in some of
20 the model data. And the model data was just good
21 enough because we were able to reach out to the
22 community, find out what was actually going on

1 there, get their observation, kind of do our bias
2 correcting of what we were doing. I don't
3 remember what the specific water level was, but,
4 at that point, it didn't matter. I just wanted
5 to know, what was the trend? Do I say it's okay
6 or do I say, you know what, it's going to get
7 worse?

8 So that was really valuable. So I'll
9 go to the next slide. So this is tying on to
10 what was shown before. The black are the areas
11 where we don't have any tidal datums, and then
12 the white area is where we do. If you look,
13 there's a lot of black in areas where we have a
14 really big concern about coastal threats, and
15 that's something that we need to work on. And as
16 it was said earlier, for us, we don't need super
17 specific information. What we need is realtime
18 information, no latency in the delivery of that
19 information so that we can see that in realtime.

20 And so we don't need a super high-
21 tech, super expensive gauge somewhere. We just
22 need something to get us the data in a short

1 manner. And these are the kinds of impacts that
2 we're trying to predict. You know, is there
3 going to be coastal flooding? What kind of
4 erosion is going to take place? The freshwater
5 supply. Newtok, in 2013, had water that
6 inundated their freshwater supply, and what they
7 ended up doing through the winter was using that
8 ice that was on top of their water supply through
9 the winter and melted it. The problem was it was
10 full of bacteria, and they ended up getting some
11 health concerns where they had to get assistance
12 later on in the year.

13 So these challenges are significant.
14 And, you know, the resources to deal with them
15 are not that great. So, again, partnerships is
16 what's all-important for us.

17 VICE CHAIR SAADE: Ten minutes.

18 MR. MOORE: Thank you. So this is,
19 you know, kind of one of the things that we would
20 look at as a forecaster. You see the model and
21 the prediction of it. You have the observation
22 that's shown on it. So this is Unalakleet, one

1 of the new observation sites that we've
2 installed.

3 And the models aren't always right.
4 In fact, they're usually wrong. It's just a
5 matter of how wrong are they going to be? So you
6 have to use the observation to bias-correct it,
7 to look at the observation and go, "that's what's
8 going on, but this is what the model is saying."
9 All right, they're off. Why are they off? Maybe
10 figure that out. Maybe it's because of the
11 orientation of the coastline, and you can
12 mentally figure that out and go, "I know why it's
13 off, it's because of this," and you can adjust
14 for that. Or maybe sometimes you don't because
15 you don't have enough observations to do that.

16 But we'll put the observations on, tie
17 it with the forecast, and then there's an
18 uncertainty there. And then we try to
19 communicate that to, you know, the villages. And
20 the problem is, if you say 13 feet, what does
21 that mean? What does that mean to the community?
22 Because as a forecaster, that's really what we're

1 looking at. We're going, well, I see the model,
2 it's showing 13 feet. I guess we'll tell them
3 it's 13 feet.

4 And then our role isn't just to
5 forecast, we're supposed to help people make
6 decisions. So we've got to figure out how do I
7 make that 13 feet relatable to what they care
8 about? That's where Jackie came in. She did
9 this for us, which is fantastic. How many
10 locations do we have? So we're expanding this.
11 This information, this is the one for Unalakleet
12 in 2017. This is actually what the Fairbanks
13 forecast office had put out, and they provided it
14 to the state, they provided it to the community.
15 So, they could look at this map and go that's
16 what 13 feet looks like, now I need to know where
17 do I evacuate. Or, if I'm in Gullivan, do I need
18 to worry about the power supply?

19 So this is really, really valuable
20 information taking what is a specific number in a
21 model in an observation and then relating it back
22 to the community. It's more things like this

1 that we should be doing in the state, and doing
2 it for more locations that are being impacted.

3 I think this is the last slide, so
4 I'll probably finish quick. This is Unalakleet.
5 This is Carven Scott showing us how to use
6 scissors correctly where he had the ribbon-
7 cutting at Unalakleet. On the right is what
8 we're calling iGage. This was developed, I
9 believe, completely within the River Forecast
10 Center, where it's a very inexpensive gauge that
11 we can install that will allow us to monitor the
12 water levels.

13 Again, it's extremely inexpensive and
14 it's just a matter of getting these things
15 installed and finding the partnerships to help us
16 maintain them.

17 And so I'm going to emphasize that,
18 that, for us -- I'll just conclude on this -- for
19 us, it's not so much high-resolution information
20 or how accurate it is. Yes, accuracy is
21 important. But it's just, for now, let's just
22 get the data and use it.

1 One of my folks or people that took
2 off after me when I left as a marine program
3 manager was Amy Fish. She tells a really
4 interesting story or comparison. So you're in,
5 just pick any big city in the United States, and
6 there's some strawberries in the store and
7 they're going rotten. What do they do? They're
8 going to chuck them, throw them away.

9 Now, imagine you're in a village in
10 Alaska and you see those same strawberries. What
11 are you going to do with them? They're going to
12 make jam. And that's what we need to be doing
13 with our observations. You know, we don't have
14 to have super-high quality stuff, we just need
15 stuff. And I'll just end at that. Thank you.

16 (Applause.)

17 MEMBER THOMAS: Thanks so much, Don.
18 Really appreciate it. Good talk and a nice
19 introduction here to the panel.

20 All right. So the next person will be
21 Jaci Overbeck, and Jaci is a geologist for the
22 State of Alaska. And I'm sure you all know that

1 you have the bios for all of the panel in your
2 packet. So there's some really interesting
3 background.

4 And, Jaci, go ahead.

5 MS. OVERBECK: Thank you. Yes, that's
6 a perfect lead-in for what I'm going to talk
7 about today, and I will say that our next
8 partnership meeting might have to take place in a
9 fifth wheel and --

10 (Laughter.)

11 MS. OVERBECK: -- go somewhere cool in
12 Alaska. I'm all right with that.

13 So today I'm talking about our
14 coordinated efforts within the state to establish
15 an interagency coastal water level observation
16 network for Alaska. I work with the State of
17 Alaska in our Department of Natural Resources and
18 manage a coastal hazards program. So you got to
19 hear a lot of what we do in partnership with the
20 National Weather Service, but I'm going to talk
21 specifically today about our water level
22 partnerships. And they go down all the way to

1 the tribal level and working with individual
2 tribe and city governments, as you can see in
3 this photo where I traveled out to Kwigillingok
4 and worked with Louis and Mick to install a staff
5 on a power pole that they can use to take photos
6 of flooding events and have a measured elevation
7 of how those events are impacting them.

8 So just a little bit of background on
9 our coastal hazards program. This map shows all
10 the coastal communities and tidally-influenced
11 riverine communities throughout Alaska. So you
12 can see we have quite a few. And we have here
13 listed from some of the government reporting
14 which communities are subject to flooding,
15 erosion, or a combination of the two. So our
16 office is doing work throughout the state to map,
17 monitor, and model both coastal flooding and
18 erosion.

19 Because we are primarily focused on
20 storm-impacted areas, we do focus on Western and
21 Northern Alaska, and I would say there's probably
22 about 60 communities within that region that my

1 office is working to provide coverage for. And
2 my office is about to be me at the end of the
3 month, so just to give you an idea of the scale
4 and the lack of resources in order to do that.

5 And on here we have a few of those
6 observations. So just from the last storm season
7 that's the tide staff that we had installed at
8 Kwigillingok getting flooded. And then just this
9 summer in Kotzebue we were there
10 opportunistically during a small-scale storm
11 event that did cause some flooding and loss of
12 access to one particular road.

13 So our office is set up pretty well to
14 establish some of these partnerships around the
15 state. And so we've done that in primary
16 conjunction with the Alaska Ocean Observing
17 Systems and in establishing the Alaska Water
18 Level Watch, which is currently a web site that
19 provides any information that we can about water
20 levels in the coastal environment of Alaska. We
21 provide access to different tools that might
22 mirror some of NOAA's tools, but are specific to

1 Alaska's needs on that web site.

2 And our partnerships are very broad.
3 This is just some of the logos for participants
4 in a recent water level meeting that I'm going to
5 talk about more, but the Alaska Water Level Watch
6 is a collaborative group working to improve the
7 quality, coverage, and accessibility to water
8 level observations in Alaska's coastal zone. And
9 you can see it takes an army of people in order
10 to do that for Alaska's great state.

11 We do have a variety of state and
12 federal partnerships as well as research
13 institutions, private industry, as well as non-
14 profits, engineering firms that are looking to
15 get access to the data.

16 So as a collaborative group there were
17 two meetings held. There have been two meetings
18 thus far, one in 2015, which was the first
19 meeting, and really established what the gaps
20 were for our state. And so Rich mentioned this
21 earlier, but here's another map of the gaps and
22 NWLON coverage for Alaska. We have our starred

1 locations as our NOAA NWLON, our backbone for any
2 other water level observations that are taken in
3 the state.

4 For comparison I put up what I thought
5 were the NWLON stations on the Texas and
6 Louisiana coasts, but I think I grabbed the wrong
7 shapefile because I looked at your map earlier
8 and it didn't seem to have the same coverage. So
9 just compare the gaps I guess between those two
10 locations so you can see just a comparison to
11 scale of what those gaps look like. There are
12 some blue marks in there for real-time water
13 level stations where data is provided in real
14 time, but those are not NWLON stations at this
15 time.

16 And then in 2018, so just last May, we
17 had a follow-up meeting to our meeting in 2015
18 where we discussed the technological advancements
19 that have taken place really due to research
20 efforts spearheaded by the Alaska Ocean Observing
21 Systems. And many of those technologies are
22 going from research stage to operation stage, so

1 that's really exciting.

2 And in better understanding what
3 technologies we can use into the future, we're
4 developing a strategy to move forward and a
5 build-out plan to identify which locations are
6 most important to have water levels collected at
7 and what types of technologies might fit that.

8 So these are some of the developments
9 since the 2015 meeting. The NOAA NWLON gauge at
10 Unalakleet was a huge success in getting that
11 established. I was just in Unalakleet on Sunday,
12 and we installed a wave run-up monitoring camera.
13 So not only are we gaining access to the real-
14 time data of an NWLON station for our
15 stakeholders' use, but we're also able to expand
16 on some of the research capacity within the
17 region, which is pretty fantastic. And that was
18 in conjunction with the U.S. Geological Survey.

19 As Don mentioned, the Alaska Pacific
20 River Forecast Center put a lot of research into
21 some of the ultrasonic sensors and even radar
22 gauges that are autonomously operated in rural

1 parts of Alaska. Those require some sort of
2 infrastructure in order to put them on since they
3 are downward looking. So we're really working to
4 get all of the bridges in Western Alaska covered
5 with these really low-cost sensors and keeping
6 them operated. So I head to Kotzebue and Deering
7 next week in order to install two more sensors.

8 And then some of the greatest
9 research, or really some really fantastic results
10 came from GNSS/GPS reflectometry. And so there
11 are these GPS sensors that are established to
12 observe plate boundaries and vertical land
13 motion, but there is kind of a secondary response
14 of that GPS hitting the water surface where those
15 stations are located near the water.

16 And so from finding that information
17 there's been a lot of effort to establish these
18 stations just for water level sensing. And so a
19 sensor was established in Seward and compared to
20 the NWLON gauge at Seward with really good
21 results. And then just recently A00S deployed a
22 sensor at St. Michael, Alaska. So that's what

1 I'm talking about on research to operations.
2 That gauge is now in rural Alaska and operating
3 at that site.

4 Then there's also been some
5 development of rapid response, so since our gaps
6 are so large, we still need to have some coverage
7 in areas where there is no infrastructure to have
8 monitoring. And so UAF developed a tripod in
9 order to put a pressure sensor on top of that.
10 And you can just place it on the beach anywhere.
11 It's above normal water levels, but during storm
12 events expected to monitor storm water levels.

13 And then JOA Surveys developed a mount
14 for a pressure transducer to be put on tidal
15 benchmark locations. And so we've been testing
16 out some of those capabilities.

17 So within the next year we're
18 anticipating to improve water level sensing
19 capabilities. Again we have the NOAA NWLON
20 stations as those black stars. And then in light
21 blue we have current operational equipment. In
22 the next year much of the new observations we're

1 hoping to establish a method for extracting the
2 water level data from those plate boundary
3 observation sites, those GNSS sensors that are
4 primarily monitoring vertical land motion. And
5 then I'll be traveling at the end of the season
6 in order to establish some other sensors. And
7 that St. Michael sensor is there as well.

8 So this is our idealized sensor
9 location map as a group. And what I've done here
10 is I've broken up different locations by either
11 the partner that we anticipate being able to work
12 with or a particular sensor technology that might
13 be most beneficial.

14 So at the top of our list we have
15 Alaska ports and harbors. And you may not know
16 but nearly 40 percent of Alaska's ports and
17 harbors do not have water level sensing
18 capabilities. So there's likely the
19 infrastructure to put on a low-cost sensor, but
20 that needs to be done still.

21 The National Tsunami Warning Center
22 has their own methods for monitoring water

1 levels, and their primary focus is of course in
2 tsunami-affected regions, but they're going to
3 continue to develop those.

4 There are some primary locations where
5 our coastal storm and tide modelers have
6 identified as being important for improving their
7 models, so at the top of Bristol Bay where
8 there's a huge tide range and is impacted by flow
9 of water through the Aleutians, as well as in the
10 back of Norton Sound where tide nodes can move
11 around St. Lawrence Island from season to season.

12 And then there is one location where
13 barge navigation has been established as a
14 primary reason for improving water levels. I
15 think that that could be expanded on with more
16 input from that community. And then the National
17 Park Service has their own capabilities for
18 establishing water level sensing sites. And so
19 we want to be able to include their data in any
20 efforts -- or in any culmination of these data
21 sets.

22 There's also some locations where

1 there might be opportunistic infrastructure. So
2 like it was mentioned, the Unalakleet tide gauge
3 worked very well for this Arctic environment
4 because there was a sheet pile wall. There are a
5 few other locations in Alaska that have sheet
6 pile walls like that that we could establish
7 maybe an NWLON or some other type of system at.

8 I've identified --

9 VICE CHAR SAADE: Ten minutes.

10 MS. OVERBECK: -- the north slope
11 communities since they are so sparse across the
12 north slope as being potential locations as well.

13 And then for areas where there's very
14 minimal infrastructure or there might be quite a
15 bit of navigation in the bay systems, buoy
16 systems are an option for water level monitoring.

17 And then at our second meeting it was
18 also identified by all of our partners that tidal
19 datums were incredibly important for any work
20 being done in Alaska. And like Don mentioned,
21 we're providing these maps to the National
22 Weather Service to inform individual communities

1 about how high storms might get. And the main
2 barrier to being able to do that at this point is
3 tidal datums. So that's why we're working with
4 NOAA's Office for Coastal Management to establish
5 at least three additional locations over the next
6 year where they'll be establishing short-term
7 water level sensors for tidal datums.

8 And then basically this map shows the
9 communities that do not have tidal datums and
10 prioritized by their potential impact to storm
11 surge flooding or for other reasons.

12 So in summary, we have -- we
13 anticipate -- we already have quite a few
14 different data sets coming in in different
15 formats, and we anticipate that improving into
16 the future, so we really need a consistent format
17 for people to be reporting in and one location to
18 access that data, something like a NOAA CO-OPS-
19 type environment that can be trusted and the data
20 are tested to a certain standard. Although that
21 standard will not meet NOAA NWLON, it will meet
22 some of the requirements that many of our

1 stakeholders use for all those reasons listed
2 there.

3 And Alaska's data needs are incredibly
4 vast, as we'll probably continue to talk about
5 throughout this meeting, so we understand that
6 we're not going to get NWLONs all along our
7 coast. And that's -- it's just not feasible to
8 do that, but we do need to use these new
9 technologies and collaborative efforts to get
10 some sort of water level monitoring system in
11 place.

12 And then I would also say that these
13 data needs are emerging. Just last winter there
14 was -- it was ice-free in the Bering Strait, and
15 the community, the small community on an island
16 in the Bering Strait was impacted by storm waves
17 and flooding that disrupted some of their
18 infrastructure, and it really sparked a
19 conversation throughout the state to say we know
20 this is going to continue to happen. This is
21 going to be a bigger issue into the future.
22 Who's doing work, who's monitoring this, and

1 who's documenting these changes? So we need to
2 get ahead of the game as far as sea ice
3 concentration is concerned and establish these
4 sites.

5 So thank you for allowing me to speak
6 here today, and I look forward to answering any
7 questions after our final presentation.

8 (Applause.)

9 MEMBER THOMAS: Thank you very much,
10 Jaci, for a really interesting presentation
11 there.

12 Our last speaker is Molly McCammon.
13 Been a good friend for several years through
14 IOOS. And Molly is the Executive Director of
15 AOOS and will talk to us a little bit about
16 AOOS's role within the water level arena.

17 MS. McCAMMON: Thanks, Julie. While
18 my slides are coming up I'm going to digress for
19 two comments. One, you may have heard some
20 stories this morning about rescues and damsels in
21 distress or whatever.

22 (Laughter.)

1 MS. McCAMMON: I just want to tell
2 you, you should not believe everything Ed Page
3 says, first off, because Ed is kind of a chechako
4 in Alaska. He's only been here like 30 years.
5 I've been here 45.

6 (Laughter.)

7 MS. McCAMMON: And when I first came
8 to Alaska I homesteaded in the Brooks Range for
9 10 years and guided hikers and boaters, and Ed
10 has been trying to catch up with me ever since.

11 (Laughter.)

12 MS. McCAMMON: But I think our story
13 though, what it really highlighted from my
14 perspective is the importance of communication,
15 and that was something that really the Coast
16 Guard commander did not really speak to this
17 morning, that we do not have very good
18 communications systems up here and in the Arctic,
19 and it is critical that we do devote a lot more
20 resources to improving those communications.

21 Here we were 25 miles from Juneau.
22 This is, I mean, lots of boats and traffic out

1 here and we -- our cell coverage was like really
2 bad. And this is some place that's close. You
3 talk to Willie Goodwin and you go up and you're a
4 walrus hunter or a seal hunter, doing whaling or
5 something, their communication is really almost
6 nil. So communication is one of those kind of
7 overarching needs and assets that really ties in
8 a lot of the pieces that we're all working
9 towards.

10 The second thing that Commander Bell
11 mentioned was just the lack of assets in the
12 Arctic. And I want to tell you that with the
13 support of our congressional delegation, the
14 support actually of Congress, the support of the
15 IOOS program, a lot of it due to Josie Quintrell
16 and the IOOS Program Office, we will be getting
17 HF radars in the Bering Strait in the next year.
18 Over \$900,000 was appropriated for that.

19 Last month with a partnership with the
20 Port of Nome, the Marine Exchange, Julie's CDIP
21 program with the Army Corps of Engineers, we
22 deployed a wave and current buoy right outside

1 the Port of Nome. With our partnership with the
2 Marine Exchange we'll be deploying weather
3 stations and AIS stations, two new ones, on St.
4 Lawrence Island in Gambell and Savoonga, and
5 looking for another site there.

6 So we are starting to get assets in
7 the Arctic. It's slow, but we do a lot with
8 little bits of money. So I just wanted to
9 digress and mention those two things.

10 So I am going to speak to you about
11 how do we grow an Alaskan water level network and
12 just the data management access innovation
13 partnerships?

14 So this is the slide that Jaci had,
15 and it's kind of our future, where we would like
16 to be. And in a way we do ourselves a disservice
17 in Alaska because we put the entire state on one
18 slide. And it looks like -- you look at all
19 those dots and you think what are they
20 complaining about? They've got a lot of stuff
21 there, and they're going to have a lot. This is
22 no big deal. We're not talking tens of

1 kilometers between these dots. We're talking
2 hundreds of kilometers. So it is very sparsely
3 sampled. There are huge gaps in all of these
4 observations. We have very few observations.

5 And so when we try to do models and
6 forecasting, our models and forecasts are often,
7 as Don said, often -- they're always wrong. It's
8 just how wrong are they and how can we correct
9 with that? And so we really are trying to figure
10 out something that's realistic given that we know
11 we have a small population. We have 750,000
12 people in our state. We know this. But what's
13 realistic? What's affordable? What's
14 technologically feasible? And trying to work
15 together to pull this all together.

16 So why is AOOS involved? Why are our
17 people looking at AOOS as a partner? A lot of it
18 is because from day one when our program was
19 started in 2003, my board established our data
20 center as our flagship program and has devoted a
21 lot of resources to our data center. We are now
22 one of the IOOS regionally-certified data

1 assembly centers.

2 We have the largest collection of
3 ocean and coastal data in the entire state. We
4 have 20 people working on this. We have more
5 capacity than almost any other data center
6 around. So it was logical that they would come
7 to AOS to help build this partnership, this
8 water level partnership. So we're building on an
9 existing system with support from the IOOS
10 program and all of the capabilities that we have
11 with this.

12 So what do we have? We have a map.
13 We have -- it's all GIS-integrated mapping
14 services. We have a data catalog that has a
15 search function. It has metadata, the ability to
16 download data. We produce individual customized
17 data views so you can assimilate and compare
18 different data streams. And we have huge amounts
19 of data available. So we have this capacity.

20 So as Jaci mentioned, our challenge is
21 to make elevation and water level observations
22 where conventional methods don't work. So we

1 have this kind of gamut of various types of
2 observations. And how do we pull those pieces
3 together and make that a network and actually
4 produce products and services to our customers
5 and stakeholders who need these kinds of things?

6 So it goes from simple things like the
7 color index maps for flood communication that
8 both Don and Jaci mentioned. So these are very
9 simple, but they also highlight that we're not
10 just talking about water levels. It's all part
11 of a package. We also need the maps and
12 charting. We need tidal datums. We need the
13 ability to tie together our terrestrial maps with
14 our bathymetry and tie that so we have an
15 accurate coastline. In most places in Alaska
16 Google Maps does a better job of showing where
17 the coastline of Alaska is than our current NOAA
18 charts. I mean, this is kind of sad. Very sad.

19 So we're trying to pull together
20 something as simple as that to something a bit
21 more complicated and complex, the land-based GPS
22 reflectometry sites, which with support from the

1 Weather Service and from Department of Natural
2 Resources and from the IOOS program we're
3 piloting a couple of systems here.

4 One of them, the ASTRA system, it was
5 -- it's used for space weather, and so we're
6 actually using that now to get real-time water
7 level observations. The other one is used for
8 seismic monitoring for plate tectonics. We're
9 using that for monitoring water levels. So these
10 are systems that are cheaper. They're easier to
11 maintain than NWLONs. They aren't as robust
12 because they don't have the redundancy that
13 NWLONs have, but they do provide very high
14 quality real-time data. So we're looking at how
15 can we test these in remote locations and
16 actually incorporate the data into products and
17 services that CO-OPS, that the Weather Service,
18 and that others can use for products.

19 So as Rich said, NOAA CO-OPS, they're
20 the gold standard, but their focus really is on
21 data products that meet their standards. Their
22 mission is to maintain the authoritative version

1 of water level observations, and they really are
2 looking at accurate and reliable. They're
3 looking at what Tampa Bay needs to put those big
4 container ships under the bridge there at high
5 tide. We don't need that level up here. We
6 don't have bridges and big container ships going
7 under them. So that's why we've been focusing on
8 kind of the non-NWLON, the non-gold-standard-type
9 observations.

10 So we've been developing this
11 partnership with CO-OPS for looking at what we
12 call Tier 2 and Tier 3 data and how can we at the
13 AOS, at the regional -- Alaska regional level
14 pilot this effort of pulling these various data
15 pieces together and developing products that not
16 only CO-OPS but the Weather Service and others
17 can use? And so we're looking at things that go
18 from historical -- the historical short-term data
19 sets that are not in real time to things that the
20 Army Corps deployed years ago when they were
21 putting in ports or a harbor or a revetment
22 somewhere and pulling these different pieces --

1 the iGages that Jaci was mentioning or GPS sites,
2 and pulling those pieces together, standardizing
3 them and incorporating them into something that
4 is visually useful for a lot of different
5 purposes.

6 And so we think this is kind of a
7 win/win for all of us. So for CO-OPS it expands
8 our relationship between IOOS and CO-OPS. It
9 enhances the IOOS contributions to the blue
10 economy by densifying the water level
11 observations beyond the NWLON backbone. It
12 pilots the regional implementation of this tiered
13 data policy vision that CO-OPS was very visionary
14 in developing, but they haven't been able to
15 implement it yet. So we're really piloting that.
16 And it encourages the use and development of lots
17 of new and different products and services that
18 puts things in the hands of users.

19 From our perspective it makes publicly
20 accessible all this data that's now on a lot of
21 different sites and different formats, doesn't
22 have sufficient metadata, and trying to pull

1 those pieces together. It increases consistency
2 in format and delivery of these records. It
3 enhances that discoverability so they can go to
4 that one site and find things. And it also
5 allows a lot of different tools so you can
6 calculate unofficial tidal datums for use as
7 you're going forward.

8 So working with Jaci and the Weather
9 Service and others we've developed these
10 templates. We have the web site up and running.
11 We have a template data portal. We're trying to
12 say, okay, does this make sense? Is this useful
13 for our stakeholders? How do people want to see
14 data portrayed? We have -- using our basic cyber
15 infrastructure, which is a huge cyber
16 infrastructure that's actually housed in
17 Portland, Oregon, and we have our own cloud
18 services, we use the AOS interactive map. So
19 you can add additional layers to it. And that
20 becomes the basis of our water level watch map.

21 We are developing sample water level
22 watch station pages. So we're trying to mirror

1 the CO-OPS pages and services, but with this Tier
2 2 and Tier 3 data sets. So we have the station
3 pages which will have interactive graphs,
4 statistics, anomaly plots. Each station will
5 have its own page. It will show the metadata and
6 the parameters over time, the history of that
7 data set.

8 We'll have data views so you can do
9 some comparisons between different sites or
10 between a nearby NWLON and a less-robust
11 alternative-type site, or maybe a historical
12 station and something that's real time operating
13 now. Then you can do some comparisons and
14 analysis from these. All of this stuff can be
15 done on the fly using our basic infrastructure.

16 We'll also have data inventory pages
17 so you can see what's the history of this data
18 and are there gaps in it? How far back does it
19 go to? And we can have that all presented
20 visually for whoever is looking at it. It will
21 also show what data has QARTOD quality, QA/QC
22 over the sensor's life-span. So you really get a

1 snapshot of that data station.

2 It will also have a data inventory
3 page. So this is an example of it. It shows
4 water level inventories and qualities for all the
5 stations from one source. This uses CO-OPS, but
6 for Tier B and -- Tier 2 and 3 we would use -- it
7 would be very similar to this.

8 VICE CHAR SAADE: Ten minutes.

9 MS. McCAMMON: In addition we'll have
10 a couple of different tools available for online
11 products that you can use to fill gaps in tidal
12 data computations and transformations. And this
13 is the Alaska Tidal Datum Portal that the state
14 has developed. We have one that JOA Surveys has
15 developed. So it gives people an additional way
16 to access the data and develop on-the-fly
17 products for themselves.

18 So what do we have so far in this
19 partnership? We have the A00S cyber
20 infrastructure, we have lots of data, lots of
21 historical data in a lot of different sites. We
22 have the mechanisms to serve up that data using

1 ERDDAP, THREDDS, OPeNDAP, all these different web
2 services. We have QARTOD for quality control
3 including gap tests. And we always -- already
4 have the Time Strata fields in our system that we
5 need to use.

6 But here's what we need to -- future
7 actions to make this happen. We need to pilot
8 implementation of both the observations and the
9 data portal in implementing -- integrating those
10 into it and actually implementing the system. We
11 need to serve up the data, especially historical
12 data, which means going back and retrieving it,
13 making sure we have the metadata, making sure
14 it's quality-controlled, and then making sure
15 it's standardized. This is something we can use
16 for building out our water level system, for
17 planning and for prioritization.

18 We need to explore options for
19 something that we call PORTS-lite systems. So
20 this would probably be something using a lot of
21 the ASTRA and UNAVCO GPS-type systems. How can
22 we put those and fill in some of those gaps

1 between our existing NWLONs right now? This can
2 serve as a model for other IOOS regions. Pacific
3 islands is a perfect example of that, but even if
4 -- on the northeast there are still gaps in water
5 level observations there, trying to pull those
6 things together.

7 So again, growing a partnership. And
8 I think this is one of the things that the IOOS
9 regions and AOOS really focus on is that kind of
10 facilitation partnership building aspect of our
11 mission. We do a lot of that. So people do come
12 to us to help be a hub and create that kind of
13 partnership. And we have great support for doing
14 that around the state and then with our national
15 partners.

16 And again I want to emphasize that we
17 need to couple this with our mapping initiative.
18 And you'll hear a little bit more about that with
19 the Alaska Mapping Executive Committee that's
20 meeting tomorrow and some of the focus on
21 mapping.

22 So water levels is a piece. Mapping

1 is definitely another major piece. So I want to
2 put a shout-out to that.

3 And with that I'd be happy to take any
4 questions with the rest of the panel. Thank you.

5 MEMBER THOMAS: Thank you so much,
6 Molly.

7 (Applause.)

8 MEMBER THOMAS: And I have to say I
9 can confirm, if you want an adventure in Alaska,
10 Molly and Ed are the two to talk to.

11 (Laughter.)

12 MEMBER THOMAS: I didn't want to write
13 to Shep and say I was stranded today, so -- it
14 was an adventure.

15 So with that, gosh, I just really
16 appreciate all the comments and it's great to see
17 the talk about the partnerships, because with my
18 time in IOOS and through this panel I know how
19 important that is.

20 We do -- Joyce, we're going to take
21 questions now? We have 15 minutes.

22 CHAIR MILLER: Yes, we have about 15

1 minutes for questions. I wanted to ask the
2 assembled admirals over here if they had any
3 questions to start off.

4 RDML GALLAUDET: Yes, actually I have
5 no questions. I kind of know some of this stuff.
6 But I do have some comments.

7 And I want to say, Rich, you know I'm
8 a big fan of CO-OPS. Your work is so important
9 to the blue economy, and your team is just doing
10 fantastic things. And I love visiting your
11 people in the field. So keep up the great work.
12 And I'll just leave it at that.

13 Also, Dan, great presentation. It was
14 great to meet you and your team yesterday, and
15 you are a terrific speaker. I took some notes.
16 I like your style.

17 But everyone in the room should know
18 that the forecasters and the weather and the
19 river forecasters at the WFOs in Alaska are just
20 doing a lot with a little. Talk about making
21 jam. I saw it firsthand yesterday. And 130 or
22 so rivers that they're tracking every day, and

1 there's multiple inputs, and there's sparse data,
2 and they are making it happen and saving lives
3 every year. So I just want you to be -- please
4 thank them whenever you see them for their
5 service. Thanks.

6 CHAIR MILLER: Admiral Smith?

7 RDML SMITH: Well, I didn't expect to
8 be called on, but --

9 (Laughter.)

10 RDML SMITH: -- I did want to --
11 appreciate all the speakers. I took a whole lot
12 of notes, and I particularly like the gap
13 analysis and really trying to go -- because
14 observations are a key to the knowledge, but
15 they're not necessarily the knowledge itself.
16 And so as we extend that into modeling, looking
17 at it systematically to look at where the gaps
18 are I think is really important, so I really
19 appreciate the analysis done there.

20 There were a couple of things that I
21 was waiting to hear, and particularly because I,
22 wearing my navigation hat, heard a little bit of

1 that from Jaci, a little bit less from others, as
2 navigation users of water levels. We heard a lot
3 about that from talking to stakeholders in
4 Western Alaska a few weeks ago, and I'd be happy
5 to -- Bart would be happy to share the specifics
6 on the tidal concerns for the navigation folks in
7 the -- particularly community resupply.

8 So and the flexibility and creativity
9 exemplified in all of the different creative
10 approaches I think is really exciting, so thank
11 you.

12 CHAIR MILLER: I had a question.
13 Molly, you mentioned communications, and I see
14 some potentially great web sites and so forth.
15 How much ability is there in Alaska -- I mean,
16 how well are communities connected and so forth
17 in order to use computer web sites and things
18 like that?

19 MS. McCAMMON: Not well. That is a
20 big issue because our web site is pretty
21 bandwidth-heavy, and it does limit users going to
22 it for -- to access the entire web site. And

1 that's why we've been focusing on these data
2 views, which takes just information from a few
3 sensors or a few data streams and trying to
4 develop those, because those require a lot less
5 bandwidth.

6 But almost every community now -- cell
7 phones. I mean, they are cell phone users.
8 Facebook. Facebook is big. The Weather Service
9 I think is really -- has been really great about
10 providing information through Facebook. I mean,
11 that's their primary access point.

12 But it's getting better. Cell phones
13 weren't used maybe 5 to 10 years ago. So things
14 are -- some things are better, some things worse
15 as there's more -- for example, just where I was
16 this past weekend five years ago they had great
17 cell phone coverage there, but now because
18 there's so much data use of cell services for
19 downloading movies, music, whatever, the
20 footprint of the cell tower is like half of what
21 it used to be. So their coverage has been really
22 reduced. So it's all these different things, but

1 that is an issue.

2 CHAIR MILLER: Thank you.

3 Other questions?

4 MS. OVERBECK: Can I first make a
5 comment --

6 CHAIR MILLER: Sure.

7 MS. OVERBECK: -- to Admiral Smith in
8 response to navigation? And I just want to say I
9 travel to these rural communities quite a bit,
10 and I think that one of the first things people
11 say is barge navigation, gaining access to
12 resources. Being in Quinhagak in early June
13 they've had sedimentation of their river, and so
14 the barge can only make it at the highest tide,
15 and even then they have to make a tight turn. So
16 they were worried about getting fuel for the rest
17 of the summer and even into the winter just from
18 that one barge coming in.

19 So that is a huge issue, and I think
20 it's something that might be under-represented
21 on that map, and I would love to get more input
22 from the barge navigation community to update our

1 map. Thank you.

2 MEMBER SHINGLEDECKER: Susan
3 Shingledecker, HSRP. Speaking of partnerships I
4 heard, Rich and Jacqueline, you both mentioned
5 partnerships with the National Park Service,
6 which I'm thrilled to hear about. We partner a
7 lot with the Park Service in the Chesapeake.

8 Another huge partner of ours is the
9 Department of Defense, and it's particularly top
10 of my mind. I was -- two weeks ago I spent a
11 week with many of the different branches at a
12 conference called Sustaining Military Readiness,
13 looking at threats to installations from
14 encroachment and sea level rise.

15 So I was wondering if anyone on the
16 panel could speak to how is the Department of
17 Defense playing a role and helping to fill out
18 these infrastructure gaps that you see,
19 particularly in areas where they have
20 installations here or nationally?

21 MS. McCAMMON: Well, I can respond
22 maybe a little bit. We don't have sites,

1 military sites that are at risk right now from
2 sea level rise, not like Norfolk and different
3 places like that, but the military is very much
4 looking at the opening of the Arctic and
5 challenges and issues there. For example, they
6 are very interested in our placement of high-
7 frequency radars in the Bering Strait. They're
8 very -- looking at partnering with us on that.

9 So I think there will be a lot more in
10 the future than there is now. But it's kind of
11 -- it's a different kind of perspective that
12 they're coming to from that.

13 CHAIR MILLER: Dave Maune?

14 MEMBER MAUNE: Hi, I have a question
15 for Molly. You mentioned that Google Earth had
16 better shorelines than what NOAA was providing.
17 I am wondering if you have tried using the new
18 IfSAR data that has shoreline on it to identify
19 shoreline issues that you might have.

20 MS. McCAMMON: I am going to turn that
21 to my IfSAR specialist right here to my left.

22 MS. OVERBECK: Yes, so there's even

1 better data than IfSAR available for much of
2 Western Alaska using recent technologies such as
3 photogrammetrically-derived elevation models, and
4 it's a matter of getting those data sets
5 processed and sent through another tiered data
6 system to apply them to the CUSP.

7 So I think we're getting there, but
8 there's no one I know right now that's going --
9 that's actually processing that data yet.

10 MS. McCAMMON: I should say the
11 priority of the state in the last 5 years, 5 to
12 10 years, has really been mapping the terrestrial
13 portion of our state and really getting that up
14 to a high enough standard, and a lot of that is
15 developed to our mineral and oil and gas
16 resources and along the pipeline corridor and
17 different places. And I think the majority of
18 that is completed now, and we are really hoping
19 that the focus can be on the coast so that we can
20 knit together the land and the ocean better.

21 CHAIR MILLER: Dave? Or Ed. Sorry.

22 MEMBER KELLY: Ed Kelly, HSRP. Molly,

1 I'll start with you and then sort of phase over
2 toward Rich.

3 (Laughter.)

4 MEMBER KELLY: There's a lot -- yes, I
5 know. I only get one question.

6 There's a lot of data I'm hearing
7 that's available from a lot of different sources,
8 and in some cases the quality might not be as
9 good. We'd like to do whatever we can with
10 whatever we can get. We've had this type of
11 discussion in a lot of different regions that
12 we've been in, even going out as far as crowd
13 sourcing and just how good does the data have to
14 be in order to be useful?

15 So really two questions I've had is
16 how good is your data overall and the format that
17 you're using here in AOOS? Would that also be
18 useful for the rest of the regional associations
19 to try to standardize some of that so that it
20 could be a more universal approach throughout the
21 various regional associations boiling up to IOOS?

22 And then kind of shifting to Rich, at

1 what point would you be able to actually accept
2 or use that data to integrate it into NOAA data,
3 maybe even into the PORTS? Because I'm looking
4 from the point of commercial maritime interests
5 who don't want to have to hit 87 different little
6 web sites; and a lot of them have disclaimers
7 because they're educational or whatever that say
8 if you use this data, you will die, your children
9 will die.

10 This data is never accurate because
11 there's disclaimers. But everything is useful.
12 So how do we get past some of that? How can we
13 standardize among the regional associations to
14 know what's out there and get it in a
15 standardized usage?

16 And then, Rich, how can you accept
17 that somehow so that -- and make an integrated
18 system overall that people can use? I know it's
19 a lot to ask, but we're kind of starting out
20 Alaska saying we don't have much and we want to
21 us anything we can get, even somewhat less-
22 sophisticated equipment. And on the other end

1 we've got the PORTS system that's out there
2 that's QA/QC, absolutely reliable, that's got
3 electronic -- there's apps you can put on your
4 phone. So how do we move from that to that? And
5 is that possible to do? Because as a user, if
6 you're on a ship, you don't have time to go
7 looking all over the place and you go different
8 ports. You might not know what's available, how
9 to start looking for it even.

10 MS. McCAMMON: No, I agree with you
11 totally on that. And I think all of us around
12 the country are facing very similar issues with
13 similar kinds of data. So I think there is this
14 -- definitely this possibility of one region
15 doing a particular kind of data and really
16 getting that together and then having that
17 replicated elsewhere. So we don't have to
18 reinvent the wheel in every region. So I think
19 that's an important thing.

20 A lot of the data that we have, the
21 historical data is actually with the Army Corps
22 of Engineers, because the Army Corps does a lot

1 of these kinds of projects to put in a port or a
2 harbor or a revetment or some kind of actual
3 facility there. The Army Corps requires that
4 there be match, and a lot of that money then gets
5 put up forward by either a private sector or a
6 municipality or a tribal government or something,
7 but there's no requirement that that data then be
8 made public. And so that's -- then you're trying
9 to go back to history and then where is that data
10 and who has it and who has control over it and
11 how can you actually get access to it.

12 So in my overly simplistic world of
13 what would be really ideal is every time they do
14 a project like that there be a requirement that
15 that data be made available publicly on some
16 certified data center in some quality controlled
17 fashion with proper metadata.

18 We're finding this now with the oil
19 and gas industry. We are housing a lot of their
20 data that they collected over time because, for
21 example, Shell in the Chukchi Sea, we're housing
22 a lot of their data now. If they come back in 10

1 years, they know they can come to us and we are
2 housing and archiving and curating their data.
3 If they left it in the hands of their contractors
4 or even their own employees, it ends up in
5 somebody's basement in Houston that then gets
6 flooded and moved and then the person retires and
7 --

8 (Laughter.)

9 VICE CHAR SAADE: Hey, some of their
10 contractors are responsible.

11 (Laughter.)

12 MS. McCAMMON: So I mean, that's --
13 but I can let others respond to that, too.

14 MR. EDWING: So one of the things we
15 did to help with this issue was a number of years
16 ago is we developed this tiered data policy, as
17 you call it, because everybody knew that you were
18 out there collecting data, but -- and everybody's
19 doing it to different levels, but nobody ever
20 really tried to kind of quantify that. So the
21 first step was to try to somehow put these things
22 into bins you could work with. And that's what

1 we did. And I think that's been relatively well-
2 received or helpful. I'll put it that way.

3 And with each one of these bins we
4 tried to associate applications. Storm surge and
5 tsunami warning information doesn't need to be to
6 NWLON standards. If a tsunami is headed at you,
7 you're not worried about whether it's a
8 millimeter or two off, right? And so we put that
9 out there.

10 Now in terms of bringing in data,
11 right now we really just bring in the Tier A data
12 for our purposes. My vision or my dream is,
13 because I always hate seeing anybody collecting
14 data, that data kind of only kind of just being
15 used by themselves or not being able to be used
16 for other people -- would be that we'd have kind
17 of local to national or federal, or national,
18 however you want to say that, connectivity and
19 exchange of that data. And I think that's where
20 the IOOS RAs can really play a huge role, because
21 they can kind of -- they can bring in that data
22 at all different levels and kind of make it

1 available. And when I need data to put into my
2 Coastal Inundation Dashboard, maybe I can reach
3 down and grab it from them and use it for that
4 purpose.

5 So I think that's kind of been the
6 emerging relationship here, and it's really
7 progressed most here in Alaska where they've had
8 to deal with such -- a lack of data that's I
9 think maybe forced the issue here more than in
10 other places.

11 And we've also been a bit flexible
12 with our port standards. I'll let you know, for
13 example, when we brought in some partner
14 stations, not so much from an accuracy point, but
15 sometimes -- one of our requirements is we always
16 have to have a spare on hand in case something
17 goes down. Sometimes the partner can't have a
18 spare. And we've said to the users, well, are
19 you okay with this sensor maybe being down more
20 than maybe these -- and they said -- if they say
21 okay, we say that's fine. We'll put it on there.
22 Just expect it's not going to be as reliable as

1 maybe everything else, but the accuracy we don't
2 shy -- or retreat from.

3 CHAIR MILLER: We've got time for one
4 more -- or two more questions. Be aware that
5 during lunch we're going to continue the
6 conversation to some extent.

7 And the other thing I'd like to let
8 the public know, there will be opportunity for
9 public comment this afternoon I think about 3:30.
10 So we always put a public comment period in.

11 Juliana?

12 MS. BLACKWELL: Thank you, Joyce.

13 Juliana Blackwell with the National
14 Geodetic Survey. Just mainly a comment and some
15 follow-up with some of the items that have been
16 brought up by the panel members.

17 First of all, I want to just say I
18 appreciate the fact that you're mentioning the
19 importance of tying the water level stations and
20 the data from those stations to the terrestrial
21 reference frame and encapsulating that under the
22 National Spatial Reference System.

1 The two points I want to make related
2 to that, and I think it's come up in some
3 conversation, and I'll be briefing more on the
4 updates of that tomorrow during the NGS update,
5 the importance of having an accurate statewide or
6 nationwide reference frame for the vertical as
7 well as the horizontal is something that we at
8 NGS are working towards in our modernization
9 efforts. So appreciate just everything that's
10 being done here in the state to help us get to
11 that point.

12 We've done a lot with airborne gravity
13 collection. We've actually completed the
14 mainland part of Alaska and will be able to
15 produce some experimental models soon that will
16 help with getting the water level station
17 information as well as all data referenced to
18 something that is 21st Century, because we
19 haven't been able to do that for you in a while,
20 and how that relates to determining the shoreline
21 and the work that's being done that was mentioned
22 with CUSP, having accurate shoreline information

1 and using the best available data that we can.

2 And I just wanted to say a shout-out
3 to the state for working with us and providing
4 the data and providing the resources to get that
5 data to the point where we can apply that to our
6 shoreline map through NOAA so that others can
7 make use of that. And that continually updated
8 shoreline product is something that we're seeing
9 is a great value to the State of Alaska as well
10 as all the states so that they can have a better
11 -- a more -- even if it's not perfect, it's
12 certainly the best available that meets minimum
13 requirements so that that shoreline can be used
14 by people, and whoever else wants to use it. But
15 we are trying to make something that is a better
16 product and appreciate all the work that's being
17 done here through federal and state partners to
18 make that grow. So thank you.

19 CHAIR MILLER: Lindsay?

20 MEMBER GEE: Yes, Lindsay Gee, HSRP.
21 Just following really a bit from Ed's comment,
22 and I guess as I was watching Molly's

1 presentation, seeing you modeling the -- trying
2 to model the NWLON stations and those sort of
3 things. And hearing Rich's vision I guess is I
4 would comment and say, yes, I would hope that in
5 that moving forward there would be that place
6 that we could all just go to the one stop and see
7 those various tiers of data.

8 And I guess that -- my comment was
9 technology is kind of moving to allow that kind
10 of easily and that -- hope that that is a role
11 that you take as being able to do that, to be
12 able to then incorporate all the -- and I think
13 we're seeing it with all of the data now. We
14 keep talking about that, but with the bathymetry
15 as an example, I think we're seeing NOAA now use
16 that non-contracted survey data that is at a
17 level that's acceptable for whatever the purpose.

18 And I think being able to define that
19 uncertainty and be able to incorporate that is
20 really important these days because people have
21 access. And the driver is going be I think the
22 site like IOOS and others, having that available

1 is going to drive you to make sure the federal
2 organizations can get at it as well. That would
3 be my comment on that.

4 And a question I guess for Molly is
5 you mentioned about archiving all the industry
6 data. In various places, whether oil and gas and
7 others, there's requirements so that gets
8 archived. The contract data for BOEM or
9 something has a -- that the data gets archived.
10 There's no -- for water level data? Is there any
11 similar kind of requirements on that and is there
12 -- and if your archive is your industry is there
13 any funding that comes to you from industry for
14 that?

15 MS. McCAMMON: Well, I know that the
16 Army Corps has a lot of that data on individual
17 engineers' computers, and they have been making
18 some effort in the past to try to standardize and
19 get metadata and make that more available. So,
20 but I don't believe there's a requirement, but I
21 wouldn't swear to that.

22 CHAIR MILLER: Other questions? Okay.

1 Tony?

2 MR. McDONALD: I'm a little bit of the
3 lawyer policy person who snuck into this science
4 group, and I just -- great presentation, and the
5 collaboration is clear and really powerful.

6 I guess I'd kind of ask a question. A
7 lot of the language is the same and -- kind of
8 how do you back-engineer out of this emergency
9 management storm readiness real time into the
10 flood management and resilience and adaptation
11 world? I think it might overlap a little bit
12 with the mapping discussion that Molly was
13 alluding to. But a little bit more about how --
14 as we think about improving this data from the
15 perspective of weather, readiness, and response.

16 How do you engage the communities
17 around -- again, you mentioned 31 communities at
18 risk for flooding now. You know, how many in the
19 future? What are future trends? What are the
20 risks? In the planning and management side we
21 talk a little bit more about more at-risk assets
22 and vulnerability of communities. And so just a

1 little more on how that relates to how you work
2 with communities and maybe some of the community
3 science things that Don was alluding to might be
4 a really great strategy as we work out all the
5 high-tech science over here in these groups, but
6 really engaging those communities might be
7 extremely important to actually getting them to
8 appreciate the value of these products.

9 So anyway, just a little thought about
10 how this overlaps. NOAA has other products like
11 Digital Coast that are a little bit more focused
12 on the management and planning community.

13 MS. McCAMMON: Well, I would say we
14 all respond a lot to those needs, and in fact in
15 the last year we have all participated in climate
16 change adaptation workshops in a lot of the hub
17 communities in Western Alaska. There have been a
18 lot of stakeholder meetings and outreach on all
19 of those. And so we have incorporated that. And
20 a lot of the work that they need, the information
21 is not necessarily in real time for planning and
22 long term. So that's again in that spectrum of

1 data sources that can respond to those needs.

2 But I've been to workshops in Nome,
3 Kotzebue, Bethel with all of these folks from
4 Weather Service and state talking to various
5 groups. And I think Jaci said something about
6 she thought the barge companies were a little
7 under-represented in our maps, but we have -- at
8 both workshops that we've had we have had barge
9 companies, we've had tribal communities, we've
10 had representatives of state and federal land
11 management agencies, and what a lot of those dots
12 on the map represent are when we get multiple
13 hits for priority areas. These priority areas do
14 reflect to a large degree -- it's not perfect,
15 but to a large degree the top priorities of all
16 these various user groups.

17 MS. OVERBECK: Yes, I mean, engaging
18 tribe and tribal governments, city governments is
19 a huge part of what I do. And basically I don't
20 do any sort of project in rural Alaska without
21 getting some sort of invitation. The invitations
22 are definitely outweighing our capacity to

1 respond to them. But we work with individuals at
2 those levels. We have a community-based
3 monitoring program. That's what the tide staff
4 or the flooding staff was showing was a part of
5 that community-based monitoring program where
6 we're giving people, local people the capacity to
7 make observations. They send data to my office,
8 and then we provide it back to them in a
9 community-specific web page, low-bandwidth, but,
10 yes, very similar.

11 Do you want to add anything?

12 MR. MOORE: Yes, I don't think I have
13 a whole lot to add. I will share one of the
14 challenges that we do face, and when we forecast
15 a weather condition or how high the water is
16 going to get, we often relate it to a previous
17 event because that's relatable to them. So we
18 say, hey, it looks like it's going to be
19 comparable to this or it's going to be a little
20 bit less than that one.

21 And for us though the challenge is
22 sometimes there's actually something that

1 happened in the community where they maybe took
2 some protective action to prevent a road from
3 being eroded. Or maybe there was a previous
4 storm that made it more vulnerable. And that's
5 the hard part for us is to know when is this
6 community really going to be under threat? And
7 so that's a really hard thing to do because there
8 are so many different communities, and the
9 communication between everybody is not
10 necessarily the greatest. And so we don't always
11 know what's going on. And that's a definite
12 challenge for us.

13 CHAIR MILLER: Okay. Thank you very
14 much. Very interesting panel. Lot of
15 interesting information.

16 RDML SMITH: Can we clap for them?

17 CHAIR MILLER: Yes.

18 (Applause.)

19 CHAIR MILLER: We're now going -- we
20 have a working lunch for the HSRP members and
21 NOAA staff in the room where we had breakfast and
22 -- and IOOS, I'm sorry, and we will reconvene at

1 1:30 here in this room.

2 (Whereupon, the above-entitled matter
3 went off the record at 12:25 p.m. and resumed at
4 1:30 p.m.)

5 CHAIR MILLER: Welcome back to the
6 afternoon session of the HSRP. Our IOOS team has
7 gone off for their separate meeting.

8 This afternoon, we have panel on
9 stakeholder perspectives for Alaska. Our co-
10 moderators will be Lieutenant Bart Buesseler?

11 LT BUESSELER: Buesseler.

12 CHAIR MILLER: Okay, and Dr. Nicole
13 Kinsman.

14 DR. KINSMAN: So, we're going to be
15 using the roving in our session -- we've got the
16 roving mic running today.

17 So, yes, Lieutenant Bart Buesseler and
18 myself as the Geodetic Advisor for Alaska and
19 the Alaska Navigation Manager, we have two of
20 some of the best jobs in all of NOAA.

21 And so, for the next two hours here,
22 you're going to get a little taste of what it's

1 like to be us.

2 We get to work at that interface where
3 NOAA products and services really get out into
4 one of the most dynamic coastal and maritime
5 environments in America.

6 And we get to see when those things
7 don't work so well and we get to see when they
8 work really well and we get to hear all about how
9 people are using all the products and services
10 that we create.

11 So, we have really some fantastic
12 stakeholders here today for you to hear from.
13 One of the best parts of our job is getting to
14 work with these people every single day and
15 getting to hear from them. And getting to work
16 closely with them and build relationships. So,
17 we hope you get a taste of that over the next two
18 hours here.

19 LT BUESSELER: So, the layout that
20 we're going to do is we're just going to go down
21 the line, have a series of hopefully quick ten
22 minute presentations hearing a little bit from

1 each stakeholder that we have about what products
2 they're using and what products they'd like to
3 see developed further to help them grow and
4 develop in their operations.

5 We're going to try to hold the
6 questions until the end. If there's a burning
7 question after a presentation, we might have time
8 for one or two, but otherwise, we'll try and keep
9 as much time as we can until the end of the
10 session then we can have a big group discussion
11 with the entire panel and our stakeholders.

12 And I think that we are going to have
13 a lot of great topics to talk about so we're
14 going to try to keep as much time in there as
15 possible.

16 So, with that said, we're going to
17 start it off with Ms. Frances Leach. She's the
18 Director of United Fishermen of Alaska.

19 MS. LEACH: I'm not going to be
20 roaming so I'm going to stand right here.

21 Thank you, my name is Frances Leach.
22 I'm the Executive Director of United Fishermen of

1 Alaska.

2 I have commercial fished on and off
3 for over 40 years with -- alongside of my father.

4 United Fishermen of Alaska is the
5 largest stakeholder group of commercial fishermen
6 in Alaska with over 35 member organizations, as
7 well as thousands of business and individual
8 memberships, mostly composed of commercial
9 fishermen.

10 In Alaska, commercial fishing is a
11 very big business, as you might've guessed. With
12 over 6.1 billion pounds of harvested seafood,
13 Alaska produces over 61 percent of the U.S.'s
14 harvest, which is more than the total of the U.S.
15 estimate of annual seafood consumption.

16 The commercial fishing industry
17 employs over 60,000 people in the State of
18 Alaska, which is the largest single employer in
19 the state.

20 We have over 9,000 commercial fishing
21 vessels in over 9,125 commercial fishing permit
22 holders.

1 The title first wholesale value is
2 \$4.2 billion with \$3.27 billion of seafood
3 exported in value.

4 As previously mentioned, we have over
5 9,000 commercial fishing vessels in Alaska. The
6 first time I visited the Marine Exchange and Ed
7 Page pulled me into the head command room, I
8 guess that's what you might call it, he pulled up
9 this image on the screen and I was absolutely
10 flabbergasted.

11 I mean, I grew up in these waters and
12 I, you know, you see the occasional fishing boat
13 as you're going by because it's such a vast
14 place.

15 But when you pull it up on the screen,
16 it is absolutely amazing. And it doesn't even --
17 this image doesn't even come close to depicting
18 the amount of vessels that are on the water in
19 Alaska right now.

20 But it does give you a really good
21 idea that we are an exception when it comes to
22 vessels in the water at any given time.

1 So how do commercial fishermen use
2 NOAA navigational services? We rely heavily on
3 them for accurate real-time weather, forecasts,
4 accurate charts and tidal and current
5 information.

6 Safety is first. Fishermen are
7 constantly making risk assessment decisions based
8 on weather.

9 They can find other places to fish at
10 the weather is going to be bad. They may not be
11 the most desirable places to fish but it's better
12 than getting stuck in a storm.

13 What would fishermen like? They would
14 like to see more real-time weather sensors and
15 relaying a forecast and observations be as
16 smartphones and AIS which will enhance efficiency
17 and safety in fisheries.

18 The recent expansion of weather
19 sensors by AOS and the Marine Exchange has been
20 a great asset and is heavily used by fishermen.

21 They also want relevant weather
22 observations in a real-time manner without having

1 to listen to a bunch of nonrelevant information,
2 which is a great segue into my next slide.

3 The man on the left is my father,
4 Leonard Leach. He's 75 years young. Today he is
5 out fishing off of Lincoln Rock in Clarence
6 Straits, which anyone will tell you in southeast
7 Alaska can be one of the most gnarliest and most
8 unpredictable weather systems in southeast
9 Alaska.

10 The boat he is pictured on is the F/V
11 Clancy, a 35 aluminum bowpicker that he is using
12 to gillnet for salmon.

13 The boat on the right is the F/V
14 Towego, a 55 foot steel halibut longliner and
15 salmon tenderer. And this is the boat that I
16 mainly grew up on commercial fishing.

17 Ed Page suggested that I should tell
18 you a great sea story about my father. He's been
19 fishing for 55 years, so he has a lot of them.

20 In 1987 is 48-foot wood boat that he
21 built by hand, took a rogue wave in Clarence
22 Straits. It was plug-loaded with 30,000 pounds

1 of halibut, filled the stern, rolled and sank.

2 My dad, heroically, and single-
3 handedly saved the entire crew, but the boat was
4 lost.

5 When I asked my dad if I could share
6 this story, he said, "No, tell them my gripes
7 about the marine weather."

8 And then, as he had me on the phone,
9 he turned on the VHF and forced me to listen to
10 the entire marine forecast for his area, which
11 lasted about 15 minutes. But, there was probably
12 only about 30 seconds worth of valuable
13 information.

14 Here's what my dad wanted me to tell
15 you, first and foremost, he said he wanted you to
16 know that the folks who are tuning into the
17 marine forecast are professional mariners. They
18 are not folks sitting on their couches in town
19 wanting to know if Saturday is a good day for a
20 barbecue.

21 Professional mariners want to know how
22 to decipher a weather forecast and they want

1 specific information to help them make the most
2 informed decisions that could be a matter of life
3 or death.

4 He said that in the synopsis not
5 enough information is given. When referring to
6 the low, he was to know which direction is coming
7 from, how fast it's moving, and most importantly,
8 what is the size of it?

9 Right now, none of that information is
10 given. He would like to know if it's a 990, a
11 980 or a 960 and if he needs to seek a harbor or
12 if he's okay where he is.

13 He wants to know the direction it's
14 coming from and how fast it's coming.

15 This is the information that is going
16 to make it or break it for them. It's like
17 knowing there's going to be a party but not
18 knowing when it is, where it is, or what you need
19 to wear.

20 And if you just know that there's a
21 low coming, it's just not helping you. So he
22 would like a lot more information on the low.

1 He also said there is a lot of fluff
2 in the report that is not very useful to
3 mariners.

4 For example, all mariners know that
5 the reports come out at 4:00 a.m. and 4:00 p.m.
6 Unless there is an update, they don't need to be
7 told that at the beginning of every synopsis.

8 He said they also don't know if it --
9 they don't need to know if it's raining or what
10 the temperature is in the town. He said the only
11 time that might be helpful is if they are docked
12 and wanting to paint their boat.

13 But knowing the precipitation in town
14 is useless information for those that are on the
15 water.

16 Lastly, he wanted to thank you. The
17 observation sites and buoys like Lincoln Rock are
18 extremely important and helpful. He is also
19 extremely appreciative of the three to four day
20 out forecast.

21 He recognizes that things can change
22 on the drop of the dime, but if he's planning a

1 halibut trip out in the Gulf, he wants to know
2 what his window is.

3 If it's gale knot winds that are
4 forecasted, he knows he's not going to go out
5 because he's going to get stuck and is going to
6 put his crew at risk.

7 So there you have it, probably way
8 more information than you want to know from my
9 75-year-old father, but with 55 years of
10 experience, I think he knows what he's talking
11 about.

12 And that wraps up my presentation.
13 Thank you. If you have any further questions
14 please do not hesitate to contact me.

15 (Applause.)

16 LT BUESSELER: Any burning questions
17 as we get queued up for the next speaker?

18 Okay, seeing none, our next speaker is
19 Captain Carl Uchytel, did I got that close --
20 close enough -- and he will be speaking on behalf
21 of the Alaska Association of Harbormasters and
22 Port Authorities -- Port Administrators.

1 CAPT UCHYTIL: Good afternoon.

2 A little more introduction, I'm also
3 the Port Director here in Juneau and I'm going to
4 be presenting on two different presentations,
5 Alaska Association of Harbormasters and Port
6 Administrators is the first presentation and --
7 okay, the Alaska Association of Harbormasters and
8 Port Administrators.

9 We represent 43 municipal harbors in
10 Alaska. We're a 501(c)(3) organization primarily
11 -- I'm sorry, we're a 501(c)(6) organization.

12 Primarily, we serve and promote ports
13 and harbors throughout the state. And we do that
14 through a variety of different ways.

15 We advocate for legislative changes.
16 We advocate for grant money, grant opportunities
17 to recapitalize the small boat harbors throughout
18 the state.

19 For people outside Alaska, the
20 Department of Transportation built and maintained
21 nearly all harbors until about 2002 when they
22 decided that they were unable to maintain the

1 facilities.

2 And so, whenever they could transfer
3 harbor responsibilities to municipalities, they
4 did so.

5 And so, there's 125 various harbors in
6 the state, 100 of them are in municipal control.

7 Some of the key legislation that were
8 working on right now is abandoned and derelict
9 vessels throughout the state and working towards
10 having a more robust opportunity to deal with the
11 vessels that are littering much of the inland
12 waterways.

13 We have some as you drive down Egan
14 Drive you'll see a derelict across the channel
15 there. And that's on state land right now, but
16 those are issues that are near and dear to the
17 Association's heart.

18 So, just showing the vastness of our
19 membership of the 42 members who go all the way
20 from Metlakatla up to Nome. Obviously, you guys
21 have heard in your presentations already today,
22 you know, Alaska being one-fifth the size of the

1 lower 48, 33,000 miles of coastline and only 4
2 percent of the U.S. maritime Arctic being mapped
3 to international modern standards.

4 So, just to show big state, lots of
5 opportunity for surveying and mapping.

6 This shows -- I sent out an email to
7 my membership and trying to distill down what my
8 user base uses. And, of course, bathymetric
9 charts, tide data, wind buoy data, and weather
10 forecasting are key.

11 It's also -- the data's also necessary
12 for determining storm surge and tsunami warnings
13 and weather forecasting. So, a little more on
14 tsunami towards the end here.

15 If I could, can I link on -- I wanted
16 to share something that we're very proud of.

17 Yes, so one thing that the Port of
18 Juneau partnered with Marine Exchange of Alaska
19 to install real-time current sensors.

20 And can you blow that up at all? Just
21 south of the CT Dock.

22 We went out to contract with Ed Page,

1 and so this is highly used by the pilots and the
2 cruise ships and the commercial fishing vessels
3 that come in and discharge their product at the
4 Taku smokeries.

5 But it's a real-time at 20 feet and
6 it'll give a -- click down some more -- click,
7 just click on one of the arrows and that'll give
8 us -- that's a real-time direction and set and
9 drift at that time off the cruise ship dock.

10 And so, we were the first port to work
11 with Alaska Marine Exchange to get this in. And
12 it's been highly valuable and Ed can talk more
13 about it at a later time.

14 But the other ports in the state are
15 following suit. So, we're very proud of our
16 record to try to improve safety and efficiency
17 throughout our port.

18 So, as far as what we need, what my
19 membership would like to see, you know, because
20 of the expansive shoreline and remoteness and
21 because of the dearth of critically underutilized
22 instrumentation, we would like to see a lot more

1 instruments, more buoys.

2 We're also -- the Association is just
3 now becoming aware of the AOS Water Level Watch.
4 And we think there's great opportunity to
5 leverage that with our membership.

6 We believe that this -- the Water
7 Level Watch will update and correct outdated tide
8 tables.

9 And we're also specifically -- we
10 believe that we need more tidal data corrections.
11 Homer, for example, weighed in and said that
12 their correction station hasn't been updated
13 since 1979.

14 And Anchorage, on another topic,
15 Anchorage was recommending that if we could come
16 up with some real-time navigational chart
17 correction for their area which is shoals
18 extensively in upper Cook Inlet and the Port of
19 Anchorage, that would be their ask.

20 And from an engineer, one thing that
21 they would like to see relative sea level change
22 data that include both sea level change and

1 uplift when designing a new port.

2 So in Southeast, and south-central, we
3 have a lot of isostatic rebound and just getting
4 the data that is updated to design for new
5 harbors would be a great benefit to my
6 membership.

7 And finally, I just wanted to kind of
8 share a story that looking for opportunities with
9 NOAA to help the tsunami issues that we see in
10 the state.

11 And when I say issues, harbormasters
12 throughout the state, right or wrong, are
13 considered first responders. They're considered
14 to be the expert with anything water related, and
15 we're not.

16 And an example in January, there was a
17 7.9 earthquake off Kodiak. And the Nixle warning
18 system that went out throughout south-central
19 through Anchorage, through Seward and Homer and
20 Cordova and also in the Southeast as well, saying
21 tsunami alert, go to higher ground.

22 And, it went out and there really

1 wasn't any, I'll say, coordinated efforts to
2 manage that information.

3 So, when you have such a wide breadth
4 of information going out, there was a lot of
5 uncertainty. And when there's uncertainty, poor
6 information fills that vacuum.

7 So, an example in Homer, Homer,
8 harbormaster started texting with the
9 harbormaster in Kodiak. And basically saying,
10 what are you seeing? We've got the alert.

11 The harbormaster in Kodiak followed
12 directions, went up to higher ground and was
13 watching the tidal surge.

14 And so, between Homer and Seward, as
15 well, coordinating with Lonnie White, the
16 harbormaster, that is how they got the best
17 information about what was going on.

18 And, right or wrong, it's an inexact
19 process. And so, I don't know if through the
20 Water Level Watch that improvements could be made
21 that harbormasters could have greater access to
22 information that would provide a greater

1 certainty with regards to tsunami warnings.

2 So, with that, that is my AAPHA
3 presentation.

4 (Applause.)

5 LT BUESSELER: So, Carl was kind
6 enough to volunteer to actually give two
7 presentations. We had Mr. Greg Kinney signed up
8 to give the presentation -- the next presentation
9 here, but, unfortunately, he was unable to make
10 it.

11 So Carl is also part of the American
12 Society of Civil Engineers and was able to step
13 up and fill in.

14 So, we've got him to go back to back,
15 he's that good.

16 CAPT UCHYTIL: So, the American
17 Society of Civil Engineers is a 501(c)(3)
18 organization. We advocate for the civil
19 engineering profession through licensing and
20 education.

21 We advocate for all engineering
22 professions. And we serve the public good.

1 The American Society of Civil
2 Engineers Alaska Section has 800 members and five
3 branches. Worldwide, we're over 150,000.

4 And so, last year when we knew that
5 NOAA reached out to the organization asking our
6 membership what resources would be beneficial to
7 our engineers.

8 We did send out an email and we got
9 some feedback. And granted, I'm going to go
10 through the points that we received. I realize
11 that all of the information is NOAA NOS, but it's
12 still, I think it's good information to know and
13 pass on.

14 So, if I was to summarize what the
15 American Society of Civil Engineers, coastal
16 engineers and marine engineers need as far as
17 records or data, they really -- we really need to
18 document the peak water levels for storm surge
19 modeling and validation of flood mapping.

20 We need to establish tidal datums,
21 standardized vertical references and especially
22 this applies to FEMA maps.

1 Would like to quantify long-term
2 relative sea level trends arising from climate
3 change and variables associated with isostatic
4 rebound.

5 We like to analyze the temporal trends
6 and coastal storm frequency, magnitude and
7 durations.

8 And, and we like to correct the
9 bathymetric and shoreline survey measurements.

10 So, I'm going to go through, I know
11 it's not the format that was requested. But this
12 is -- these are just kind of responses that we
13 got back from our membership and if it resonates
14 with you, fine. If there's another colleague
15 within NOAA Weather Service, please feel free to
16 share it.

17 So, storm surge studies, especially
18 Western Alaska where were having a lot more
19 degradation and erosion, more air temperature
20 monitoring stations, again, in the remote areas
21 as they pertain to permafrost and climate
22 information.

1 Ground temperature profile data
2 throughout Alaska would be desirable. And more
3 wind and precipitation data in rural Alaska.

4 Unalaska, specifically, is collecting
5 their own data. They're working with the
6 Department of Natural Resources and U.S. Geologic
7 Service to get that information.

8 Wave buoy seems to be a topic even
9 with AAPHA that would like to see more inshore to
10 provide the data that they need, that there
11 coastal engineers need.

12 You know, the bathymetric survey
13 information is well known. Establishing the sea
14 level changes are important, especially data
15 further up and above the mean higher water is
16 very important for a lot of coastal engineers
17 when we're designing small boat harbors.

18 And any information that NOAA can
19 provide on the potential for alternative wind and
20 energy potentials in Alaska.

21 The engineers also would like to see
22 the data in CAD DWG format would be very helpful.

1 There is some concerns from a lot of
2 our engineering companies and going to get
3 permits. And it seems like that's a growing
4 challenge in Alaska, coastal permits. And I can
5 vouch for that as well. We're spending tens of
6 thousands of more dollars on our permitting
7 issues.

8 And just a lot more detailed rain,
9 snow depth data would be helpful and tidal data
10 updates.

11 So, I don't think this is a NOAA
12 issue, but meandering rivers and vegetative cover
13 throughout the state and more investment in
14 weather stations.

15 So those are kind of unvarnished
16 bullets that we received from our membership.

17 LT BUESSELER: Thank you very much.

18 (Applause.)

19 LT BUESSELER: So, next up we have
20 Captain Hans Antonsen with the Southeast Pilots
21 Association, SEPA.

22 CAPT ANTONSEN: Thank you very much.

1 First of all I'd like to say thank you
2 for inviting me to participate. Obviously,
3 weather, tides and currents, wind are thing that
4 are just the foundation of what pilots do, charts
5 and everything.

6 My name is Hans Antonsen, I'm a third
7 generation Alaskan, born and raised on the
8 waterfront in Ketchikan. I think I learned how
9 to operate skiff and an outboard before I could
10 ride a bicycle. And, it was just as frequent to
11 see a kid from Ketchikan going around on a skiff
12 as it was a skateboard or a bike.

13 We have quite a few pilots in our
14 organization. We have a majority of pilots in
15 the state. Of the 75 pilots, approximately in
16 the state right now, we have about 50.

17 We have a little bit of attrition
18 problems so we have 17 trainees right now that
19 are up and running and riding these ships.

20 As you know, the three regions of
21 Alaska for piloting, Region 1 is Southeast from
22 the border with British Columbia up to and

1 including Yakutat Bay, 141 degrees west latitude.
2 And, our primary industry is cruise ships now.

3 Cruise ships provide about 99 percent
4 of our volume, it used to be about 75 percent.
5 But since 1998 and the closure of the mills,
6 we're a cruise-centric region.

7 The other two regions, of course,
8 Aleutians, fish, and Southwest, oil and
9 containers.

10 Cruise ships have been on the rise
11 steadily since I started. This is my 31st season
12 piloting as a ship's pilot after my career on
13 tugboats. I worked with Frances's brother, I
14 believe, and know her family well, their
15 reputation.

16 And the ships have been getting bigger
17 and bigger all the time, as you see. I spent last
18 night cruising up from Ketchikan, mostly in the
19 fog, but otherwise, looking at the stern of the
20 Bliss or, as I call it, the Bling because it's
21 really bright.

22 I don't have the guts to ask a fishing

1 boat to turn its sodiums off when I'm on a cruise
2 ship. I just like expecting the guy to say "you
3 first"

4 Our usage of the tools for NOAA,
5 basically, charts are the foundation of what we
6 do. Other than looking out the window, second to
7 looking out the window, charts are the foundation
8 for what we do.

9 That's why we start with state pilots
10 just memorizing charts and drawing them from
11 memory, sounding points, rocks, buoys, light
12 sectors.

13 All the data on the coast pilot and
14 the light list, the light list had a lot of
15 columns and information. We only had reproduce
16 nine of those or 52 Aids to Navigation. That was
17 a one day's chart.

18 Accurate tide and current data is huge
19 with these bigger ships. The bigger the ships
20 get, the more important it is for us to have
21 accurate tide and data -- tide and current data,
22 especially the currents.

1 These big ships have lower tolerances
2 with tide and current and wind. The ships are
3 not getting only bigger, but we're getting more
4 of them.

5 We used to have medium-sized ships,
6 now we seem to be trending toward very large
7 cruise ships, the ultra-large ships and then
8 smaller excursion boats. And we all have to
9 share the same waterways.

10 Weather, weather is huge. I mean, we
11 use weather long-range planning, short-time
12 decision making. But, if we're going to be able
13 to continue to bring these big ships to Alaska,
14 bringing one million passengers a year or more to
15 Alaska, a lot of those are probably U.S. voters
16 that can help get some funds directed to NOAA and
17 the Coast Guard for dredging for projects or
18 weather sensors. We hope so.

19 But these people all want to get up
20 and close to Alaska. They don't want to cruise
21 by, they want to come in and see what we have to
22 offer. They want to see glaciers. They want to

1 whales. They want to see everything.

2 They want to land on the top of the
3 glacier. They want to climb on that iceberg.
4 They want to shake hands with the bear. They
5 want to experience Alaska.

6 So, these are the tools that we use
7 the most.

8 The tools we don't use is the Coast
9 Pilot because most of us have that memorized
10 anyway. And we use the real-time information.

11 We want to be able to, at a glance,
12 say what's happening now? How do we make a
13 decision now? How does the present dynamic
14 changing conditions, where we are, where we're
15 at, affect our decision making?

16 Big ships bring big risk and risk
17 needs to be mitigated. One of the things that we
18 can -- the tools that we can use to mitigate the
19 risk of these ships coming is have accurate data
20 to make good decisions.

21 So, our requests, we'll keep it short
22 because we had a list about three pages long.

1 So, we pared it down because I'm doing the
2 presenting into three.

3 We really encourage the expanded use
4 and expanded placement of real-time current
5 sensors and wind sensors. That's huge for us.

6 And I would say that wind is probably
7 the biggest priority right now.

8 With these big ships, pilots are going
9 on board, we're riding these ships, we're
10 collecting and collating data. We're running
11 these ship models through simulators.

12 We're putting in several different
13 scenarios of wind and current to try to see ahead
14 of time how much wind can the Bliss, that's
15 parked out in the AJ Dock right now, how much
16 wind can it take going up the east channel of
17 Ketchikan Tongass Narrow? The answer is about 25
18 knots.

19 At 25 knots of wind, the Norwegian
20 Bliss, without going into Aziman Mode, has about
21 a 10.5 angle swept path.

22 That gives me about 25 meters on each

1 side of the ship from one buoy to the next to get
2 through.

3 On a good day with the Bliss, if I
4 could get within 25 meters of the track line
5 where my pivot point is, they think I was a super
6 pilot. I'm just an average pilot.

7 So, the wind is the most important
8 tool.

9 Current meters are also important.
10 Our request is just to continue to work on
11 accuracy of meters, especially in places like
12 North Indian Pass where, for some reason, the
13 recalculation has changed what we are expected to
14 experience in North India Pass from 7 knots which
15 it has been ever since I was young to less than
16 that, 3, 4, 5, 6 knots and less.

17 That's not as important safety-wise
18 because that's a planning tool. But of more
19 importance, is what we see in collaboration with
20 the Marine Exchange, is the current sensors in
21 the harbors being able to come into Juneau
22 Harbor, make real-time decisions about trust and

1 verify.

2 This is what we expect to see. If we
3 are seeing that, this is how to maneuver the
4 ship. If we're not seeing that actual observing
5 what the predications are, then we'll do
6 something different.

7 We need the information format that is
8 easy for us to assimilate and make safety
9 decisions on. Situation evaluation, risk
10 analysis, and make decisions.

11 You see here, there's just not a lot
12 of information on those chevrons, those arrows.
13 But it tells us the speed and it tells us at a
14 glance what we can expect. Which way is this
15 ship going to set? I love that.

16 Easily accessible, we can't get that
17 information on the ship's ECDIS. There's a sign
18 outside the ship that -- the door of the bridge
19 that says, cruise -- excuse me -- it says, cell
20 phone use is prohibited on the bridge.

21 Well, I use this on the bridge because
22 I dial up the Marine Exchange website and I look

1 on the Marine Exchange website real-time weather
2 and I can see what the current's doing and I can
3 see what the wind's doing at three different
4 points in Juneau Harbor.

5 And, as I'm looking at my pilot unit,
6 my navigational unit that's plugged into the
7 ship's AIS port, I've got my phone in my hand
8 that gives me other data that can be used in
9 making decisions and I can't get that on the
10 ship's AIS.

11 We need to be able to have this
12 information in a way that we can actually use it.

13 Also, ease of access to simple tools.
14 The watermark there you see is just a simple
15 surface map. Now, it looks a little bit
16 different from the surface map that's available
17 on the NOAA website which has got blue and green
18 and red and all kinds of colors and chevrons and
19 arrows and everything. That's great, give me
20 that. That's a shortcut on my phone.

21 I punch that, I'm good to go. I see
22 that at a glance, I can see what I can expect if

1 I'm going to cross the gulf in a ship carrying
2 5,000, 6,000 people before we start out.

3 So, ease of access of simple tools,
4 don't get lost in the feldercarb of all the data
5 that is available. Like Ms. Leach said, we don't
6 need to listen to four minutes, we don't need to
7 listen to four minutes to get 30 seconds of
8 information.

9 Another tool we don't use, we don't
10 listen to the weather forecast anymore. We
11 can't. It's useless to us, we have to move on.
12 So, we get our information for weather in
13 different ways.

14 Surveys of retreating glaciers, Tracy
15 Arm/Endicott Arm and then in Glacier Bay,
16 Margerie Glacier. In Endicott Arm, Dawes Glacier
17 has retreated eight-tenths of a mile behind the
18 survey point.

19 It used to stay off the glacier two
20 and a half cables, 2.5 nautical miles so you
21 wouldn't get a shooter come up and interfere with
22 the ship.

1 Now, we have to worry about grounding.
2 So, very few cruise ships, especially ships like
3 the Bliss with so many people want to go beyond
4 "there be dragons" where there's no surveys
5 beyond that. And, they would be irresponsible to
6 proceed past a point where there are reliable
7 surveys.

8 We talk a lot to the Allen Marine
9 people who are a great resource up in Glacier Bay
10 and Endicott Arm and in Tracy Arm, I mean,
11 sharing conditions of ice.

12 But we would encourage to get some
13 boat sheets and get some new surveys in front of
14 some of the glaciers that have retreated so far.

15 Margerie Glacier in Glacier Bay, some
16 real big pinnacles out there that used to be safe
17 water now are revealed to be sandbars and rocks.

18 So, that's basically the list of what
19 we'd like to see.

20 Perspective is everything on a cruise
21 ship. Speed is everything when you're going
22 through ice.

1 A lot of these ships that we're using
2 have limits and most of those limits of being
3 able to go through Tracy Arm/Endicott Arm are
4 based on wind.

5 So, as I said, with the Bliss, pilots
6 took the lead in modeling the Bliss in Southeast
7 Alaska, Tracy Arm Bar, Ketchikan. We took and
8 remodeled that ship. We spent 5,000 man hours
9 last winter, the pilots did, unpaid,
10 uncompensated for.

11 We set up simulations in Navtech and
12 down at PMI. We're doing the same thing this
13 winter. I'm on the committee for very large
14 cruise ship committee.

15 We're modeling these ships, we're
16 seeing what they can do and we're using the tools
17 that you provide to us to plan and try to come up
18 with port parameters that we think are safe for
19 these ships to come in.

20 The duties of a pilot are simple, we
21 have one job, safe navigation of ships under our
22 direction and control.

1 And the purpose of that is also in
2 statute, it's protection of life, property and
3 the marine environment. That's all about the
4 State of Alaska. That's not about Carnival
5 Cruise Lines. That's not about NCL, RCI, that's
6 about the people of the State of Alaska,
7 protecting their lives, their property, their
8 marine environment.

9 So, we rely on your tools heavily and
10 we probably use your tools more than we use any
11 other resource that we have, cookbooks,
12 everything else, other than the Bible, I use the
13 NOAA resources more than anything else.

14 And I would really encourage you to
15 continue the partnership with Marine Exchange,
16 help us make these real-time current sensors,
17 wind sensors available to all mariners in a form
18 that we can use.

19 And we just applaud what you're doing.
20 We've had a long partnership with you. We thank
21 you from the pilots. They wanted me to thank you
22 for the responsiveness that NOAA has really had

1 to pilots, seeking out what's important to us and
2 then responding as best they could.

3 So, let us know, we'll give a call to
4 the White House and see if we can't trump up some
5 more money for you.

6 So, anyway, that's all I have and I'll
7 be available for a few hours here. I have to
8 sail the Golden Princess out. But, you have my
9 email there and you can get my contact
10 information in other ways from Ed Page if you
11 need.

12 And I'll be happy to answer any
13 questions throughout the afternoon.

14 Thank you.

15 (Applause.)

16 LT BUESSELER: Thank you very much.
17 Our next speaker is with Allen Marine Tours and
18 it is supposed to be Angela, right? It was Brian
19 Vreeland, that's what your schedule says, but he
20 got called away so, Angela has stepped up at the
21 last minute to give the presentation. So, thank
22 you.

1 CAPT THROWER: Hi there. Thank you so
2 much for having me today.

3 My name is Angie Thrower. I
4 apparently don't know how to use slides.

5 But, I'm the Staff Captain at Allen
6 Marine Tours. I don't want to take up too much
7 time waiting for those slides -- fantastic. Oh,
8 that would be the old slide show.

9 That's all right.

10 So, I'm Angie Thrower. I'm the Staff
11 Captain at Allen Marine Tours in Juneau.

12 Just a little bit about myself, I'm a
13 local born and raised Juneauite. I am a Captain
14 and I'm a tour professional of the past 12 years.

15 Now, Allen Marine Tours, we are a
16 local family-owned company. For those of you
17 unfamiliar with us, we started off 50 years ago
18 over in Sitka, Alaska, with just a single vessel
19 and a shipyard.

20 We started servicing the cruise ships
21 that came to port.

22 Now, you can say we've been a little

1 bit busy since then in the last 50 years.

2 We currently operate three main
3 divisions. We have our tours division operating
4 out of Sitka, Juneau, and Ketchikan.

5 We have our Alaska Dream Cruises
6 division which is what our take on Alaskan
7 cruising is. We have five overnight ships as
8 well.

9 We also operate Allen Marine
10 Industries which is where our shipyard where we
11 design vessels for Alaska by Alaskans
12 specifically built in Alaska.

13 So, you could say we're pretty
14 homegrown. We're quite expansive. We hold
15 contracts -- our day touring holds contracts with
16 almost every major cruise line that comes to port
17 here in Southeast Alaska.

18 As Hans did say, we're just over a
19 million cruise guests to port this year and then
20 the next three years, we're projected to be over
21 a million and a half.

22 So, we do hold contracts with almost

1 every single one of those very, very large ships,
2 increasingly large ships here.

3 Now, we do operate about 300 nautical
4 miles. Our tour range is about 300 nautical
5 miles. We have 450 seasonal employees and 150
6 year-round employees. So, we're very invested in
7 this state economy.

8 We're invested in keeping our labor
9 local, keeping our contracts local, keeping our
10 vendors as local as possible, as well.

11 Now, we do also offer something
12 particularly unique about us, particularly with
13 our relationship with the cruise lines. We
14 provide remote access to public lands, to
15 national wilderness areas, to congressional
16 National Monuments, areas like Tracy Arm, Glacier
17 Bay, Misty Fjords.

18 We provide an ease of access for these
19 remote areas and public owned lands.

20 Now, we are also the largest operator
21 of U.S. Coast Guard certified tour vessels in the
22 southeast region of Alaska.

1 Our fleet currently consists of 35
2 passenger vessels and we're looking to expand
3 into 40 in 2019. So, we are a rapidly growing
4 and ever expanding company.

5 In fact, I do believe that a lot of
6 you are going to have the opportunity to come out
7 with us in the next couple of days. I think you
8 have a cruise booked with us, so we're very
9 excited to see you.

10 There we go.

11 So, how our captains use all of these
12 -- all of the NOAA tools. Primarily, what we
13 use, we use the daily marine operations -- or
14 daily marine, sorry, weather observations.

15 These weather observations, they are
16 used by every captain in the fleet every single
17 day. All of our remote teams, so all of our
18 offsite teams, people working out in the Taku
19 Inlet area, people working out over on Cole
20 Island and all of our management team as well.

21 We use this information to make
22 weather-based safety decisions. We want our

1 passengers to be comfortable and we want them to
2 be safe.

3 And one of the things that were really
4 proud of as a company is that we homegrow our own
5 captains. The vast majority of the year-round
6 staff -- year-round captains that we have, we
7 raised and trains ourselves.

8 And one of the most -- one of my
9 favorite maritime adages that we teach our
10 captains, a superior captain uses superior
11 judgment so they do not have to demonstrate
12 superior skill.

13 Now, part of that is using all
14 information available. That information, that's
15 our day-to-day -- the day-to-day weather
16 observations. That's the weekly Marine
17 forecasting that decides whether or not we're
18 going to relocate a vessel Juneau to Sitka in
19 February.

20 Anybody who's familiar with Lynn
21 Canal, when it's blowing 80 and there are 16
22 footers out there, you stay home, that's what the

1 prudent mariner does.

2 It also -- the marine forecast, using
3 any history, any facts that we can get on that,
4 we use that for decision-making and tour
5 expansion. Where do we want to go next?

6 That's one of my favorite things about
7 working for Allen Marine. Even though were just
8 one tour company, we're creative. We like to
9 push the boundaries. We like to share Alaska
10 with the world.

11 So, a lot of that -- a lot of the
12 decision-making for where were going to go next
13 is based on all of the maritime forecasting, the
14 history of weather in certain areas, about
15 whether something is possible and whether
16 something is smart to do.

17 So we also use your nautical charts,
18 which we really appreciate. They are actively
19 used at all times by all captains in all ports.

20 We use AIS. We have our NobleTek up.
21 We make sure that we are appropriately zoomed
22 into the right area.

1 Now, we do have a graphic of the South
2 Sawyer Glacier, this little chartlet right there
3 off to the left.

4 As Hans was saying about the Dawes
5 area, these charts are a little outmoded. When
6 our tour vessels are in the Coast Guard
7 recommended quarter-mile away from the face of
8 South Sawyer Glacier, we're inside of South
9 Sawyer Glacier.

10 And so, it would be great to see a
11 little bit up updating to those charts.

12 Now, those nautical charts also
13 determine site safety, site-specific safety
14 protocols. So, all of our emergency planning,
15 all of our bailout points, if something were to
16 go wrong, where can we beach the vessel? Where
17 is it safe to go? Where is the closest area to
18 safely offload the up to 150 guests that we have
19 on each one of our boats at a time?

20 Now, it also -- those nautical charts
21 also aid in decision making for tour expansion.
22 And also aid for decision making when a tour

1 might not be as prudent anymore.

2 One of the very first tours that Allen
3 Marine Tours operated in the Juneau area was at
4 Taku. I don't know if anybody was around for
5 that.

6 So, Taku Glacier is a very unique
7 area. That glacier, it's an advancing glacier.
8 It's in a constant state of motion. It's dumping
9 a whole lot of silt into that area. It makes it
10 very shallow to operate.

11 Thirty -- or 20 years ago, we were
12 able to take our catamarans all the way up Taku
13 River and get a great up close look.

14 In the 1930s, cruise ships were going
15 to the face of Taku Glacier to check it out.

16 A couple -- about 15 years ago, the
17 glacier had such an incredible surge, it moved so
18 substantially, it kind of snow plowed up all of
19 that glacial till, all the sand, all the mud, it
20 snow plowed it up and we were no longer able to
21 do our tours up there.

22 Now, we kind of kept our eye on Taku,

1 and a few years ago, we started doing a
2 hovercraft tour up the Taku because that was the
3 prudent vessel to use.

4 So, we need to know what an area is
5 like before we're looking at expanding into that
6 area. It kind of informs what type of vessels we
7 should be building.

8 We are Alaskans building vessels for
9 Alaska and we need to know what that terrain is
10 like and we need to know what the weather is like
11 to inform that decision making.

12 Requests for navigation services, as
13 everybody on this panel has said previously, we
14 would like to see more real-time information.

15 When we are moving vessels from one
16 area to another, it's important to know, you
17 know, when Icy Strait, Lynn Canal and Chatham,
18 when we have a vessel approaching that area in
19 the middle of February, we'd like to know exactly
20 what the weather is doing.

21 We want to make sure that we're using
22 our prudent judgment or, great example, we

1 subcontract transportation for some of the mining
2 in the area. So, Green's Creek and Kensington,
3 we do transportation subcontracts for them during
4 the winter.

5 If I'm waking up at 2:00 in the
6 morning, and for those of you familiar with
7 Alaska, it's a little dark at 2:00 in the morning
8 when we have blinding snow, so flood lights don't
9 even help you.

10 But when I'm waking up at 2:00 in the
11 morning to go do a transportation run between
12 Slate Cove and Echo Cove, the first thing I'm
13 going to do is get on my phone and check what
14 Eldred Rock is saying.

15 So, if the Eldred Rock observation is
16 saying it's blowing 80, I'm making a couple phone
17 calls and going back to bed.

18 Again, we want to use as much
19 information as possible. If the forecast had
20 been less than that and the forecast wasn't
21 accurate, that means we're finding these huge
22 seas, we're finding these huge winds when we're

1 out in it.

2 We're not able to make the prudent
3 call to not leave port at all. So, it's
4 important to have that real accurate in-time
5 information.

6 Now, one of the most important things
7 about charting in this area, Alaska is in a state
8 of change. For those of you not familiar with
9 the geology of the state, for those of you not
10 familiar with the glaciology and the natural
11 history, Alaska is very new. We're very young in
12 terms of natural history.

13 I've heard, I believe Carl mentioned,
14 isostatic rebound. So, the State of Alaska,
15 we're growing a little bit. We're rising, all of
16 that -- all that granite is still relaxing and
17 expanding which causes certain narrow channels
18 like this is Echo Cove, it's an area that we
19 navigate through that run out to Kensington Mine,
20 taking miners back and forth between the remote
21 work site and Echo Cove.

22 So, isostatic rebound is one factor

1 here. Additionally, the shifting sand bars, the
2 glaciers that have formed Alaska are still in the
3 process of forming Alaska.

4 Massive amounts of glacial silt flow
5 through this area and choke up narrow waterways
6 just like this.

7 So, this is the chart as it exists
8 into Echo Cove. Now, it's a very narrow
9 waterway. Our vessels are very large, but we
10 have a nice shallow draft.

11 Unfortunately, this chart is not --
12 it's not accurate to the area. More accurately,
13 when you see our track lines, we go right over
14 the land.

15 So, it's really fantastic, it would be
16 great to get the opportunity to have just have
17 the surveying take another look as some of these
18 areas.

19 Because, not only are they
20 transportation securities, they're great points
21 of interest for guests traveling to Alaska.
22 These are fantastic marketable exclusive areas

1 that people want to come see on public lands.

2 Now, the more accurate we can get with
3 the real-time weather information, with the
4 charting, being responsive to the state of change
5 here in Alaska, the more accurate we can get.

6 That will increase our safety. That
7 increases our reliability. And, overall, it's
8 not just us as a company, it increases consumer
9 confidence in the State of Alaska, not just day
10 boats, not just tourism, but it increases
11 consumer confidence in the State of Alaska.

12 Guests from all over the world travel
13 here to experience this beautiful place. And,
14 it's our obligation as mariners, as a company and
15 as Alaskans to make sure everyone gets home safe.

16 So, we use those tools, all of the
17 maritime forecasting, all of the real-time
18 observations and all of that charting to make
19 sure that everyone, both crew and guests, get
20 home safe.

21 Now, in terms of tourism futures, I
22 had mentioned before, Allen Marine is a very

1 expansive company. We like what's next. We want
2 to see what's new, we are interested in what the
3 people are interested in.

4 So, we're always looking for that next
5 thing to do. We're really excited about that.
6 And the more accurate information we get, the
7 more we're able to custom build our vessels to a
8 certain site, the more we're able to go explore.

9 As I mentioned before, the more
10 reliable information we can have, the more we
11 have a better idea of not what is only possible,
12 but what is safe.

13 So --

14 VICE CHAIR SAADE: Ten minutes.

15 CAPT. THROWER: Thank you so very
16 much. That was perfect timing.

17 So, thank you so very much for having
18 me today. I'll be sticking around for the next
19 few hours if you have any questions about Allen
20 Marine Tours or touring on the waters of
21 Southeast Alaska, I would be happy to answer
22 those questions.

1 Thank you so much.

2 (Applause.)

3 LT BUESSELER: Thank you. And last,
4 but certainly not least, we have Mr. Mark Smith
5 who's the CEO of Vitus Energy. Western Alaska
6 Perspective.

7 MR. SMITH: Appreciate the fine
8 audience here. It's rare to get on a soap box
9 and have such a powerful audience. Usually, I
10 yell at individuals or small groups. So, having
11 you all together here is just fantastic.

12 My position in navigation is actually
13 -- it's the end of a long chain. So, I have
14 great uncles on both sides of my family.

15 One of them was in the Klondike Gold
16 Rush. I have a picture of him crossing Lake
17 Leberge on his way to Dawson.

18 My other great uncle, Frank, was in
19 the Nome Gold Rush before the turn of the last
20 turn of the century.

21 And when you're in Nome and you think
22 about the infrastructure and the extraction of

1 all that gold there, everything that got to the
2 Nome gold fields came in on ships and was
3 lightered ashore in lighterage vessels.

4 And so, that's kind of a -- it's a
5 military term, not many people know it. But,
6 essentially, what we do in all of Western Alaska
7 is really lighterage.

8 We have large ships that bring in fuel
9 and freight. And, none of those ships generally
10 reach a majority of the population. The number
11 of docks that you have in Western Alaska, and if
12 you count Dutch Harbor, that's one.

13 You have some docks in Naknek and
14 Dillingham mainly to serve the fishing industry.
15 You have a small dock at Bethel, but you're
16 restricted to 11 feet up the Kuskokwim River.
17 And then, you have a Nome Dock and then you have
18 a Kotzebue Dock.

19 Kotzebue is restricted to about eight
20 feet to cross the bar in Kotzebue.

21 So, what we have in western Alaska is
22 really a lighterage situation. And that is a

1 choke point that every good or service that can't
2 be stuffed in an aircraft needs to go across.

3 So, my point is, is that Alaska is
4 much the same frontier state that it was a 100, a
5 150 year ago.

6 We don't have a highway
7 infrastructure. And so, we have this little
8 choke point that all the things, all the vessels
9 really provide that very valuable and critical
10 service is getting goods and services to that
11 population in western Alaska through the act of
12 lighterage.

13 So, I started with my great uncles.
14 I'll skip a lot of the other relatives that
15 influenced me. I did grow up like a lot of these
16 other folks on the water. You started out set-
17 netting on the beach with your mother and your
18 other siblings that were young.

19 At 13, we had what was called the
20 Bristol Bay bar mitzvah. When you're 13, you
21 leave your mother and your siblings, younger
22 siblings, and you go fish with your father on a

1 boat.

2 It wasn't quite as sexist as it
3 sounds, because all of my sisters did the same
4 thing. And I have a current sister in Bristol
5 Bay. She's one of Icicles' top fishermen for the
6 area.

7 So, at 18, is the day you leave your
8 father because you're eligible for the State of
9 Alaska commercial fishing loans. And so, all of
10 the family, when they turned 18 were immediately
11 told by my father to go get their own boat and
12 permit. And he took the next kid.

13 So, I was one of those kids that grew
14 up in this area of commercial fishing where that
15 really funded my college, my high school, and
16 everything else. And our family not only did
17 commercial fishing, but my grandfather also
18 worked for the fishing business and he said, wow,
19 there's all these wooden barges that are just
20 used for, you know, 40 days out of the year. We
21 have all of this infrastructure going into
22 western Alaska. Why don't I use these wooden

1 barges and we'll deliver freight and fuel to all
2 the outlying villages for the U.S. government,
3 for the U.S. military, for Bureau of Indian
4 Affairs as infrastructure really began growing in
5 the state.

6 So, that's the self-introduction.

7 The current company is really kind of an
8 evolution of the company that my grandfather
9 formed called Smith Lighterage Company in 1932.
10 Vitus is a kind of a natural extension of that.

11 I included this picture because it
12 really kind of demonstrates the craziness that
13 you can find in Alaska. That's the Coast Guard
14 Cutter Healy. And we're doing a winter fuel
15 delivery to Nome.

16 And, growing up in western Alaska, I
17 thought I knew ice. And so when we took this
18 rather unusual project, I thought I was well-
19 prepared. But the truth is I was woefully under-
20 prepared.

21 The Healy is not really an ice
22 breaker, it's an ice-capable research ship. And

1 the Russian tanker that we chartered to come into
2 Nome had a 29-year-old captain. And what I
3 learned from him was an amazing amount of items,
4 because he had spent his life actually working in
5 the Bering Straits up in the north in the ice.
6 And he had a lot of practical knowledge. I'd
7 just love to sit down and interview him for a few
8 days and write a short book on what it means to
9 really navigate in the ice and the currents and
10 the pressure and the expansion and the nature of
11 ice navigation.

12 So, you can see the Renda off in the
13 far right. I took actually two pictures. I took
14 this same picture of the Renda with the Healy
15 being the small boat to demonstrate that they're
16 sort of two perspectives about what's most
17 important.

18 So, the Russian presentations always
19 had the Renda large and the U.S. presentations
20 always had the Coast Guard cutter as the major
21 part.

22 So, Vitus tries to be a dynamic

1 company in looking how we most efficiently bridge
2 this lighterage gap that truly is a choke point.
3 And it's very expensive, because you take a
4 commodity and you put it in a little tiny barge.
5 Our smallest barge is only 55,000 gallons if you
6 max it out to 5.6 feet. But we have some places
7 where we go where we can only take two and a half
8 feet.

9 So, you still have to have a fully
10 compliant, fully inspected, fully licensed crew
11 to deliver that, and your cost per gallon just
12 skyrockets as you go in to some of these places.
13 So, we have a lot of areas out there where Vitus
14 is trying to save pennies and dimes on an already
15 very expensive commodity.

16 It's sometimes embarrassing to talk
17 about economies of scale, because we really don't
18 have any in western Alaska. So, when I approach
19 NOAA, I'm not going to spend a lot of time on
20 that. And I'm always going to take the other
21 side of the argument about anything that has to
22 do with cost effectiveness, because cost

1 effectiveness really isn't an issue out here.

2 To serve these people, we have to have
3 the tools that we'd have whether it's 5,000
4 people or 5.5 million. We're still taking oil
5 barges, we're dragging oil barges across these
6 areas, and safe navigation for the preservation
7 of the state, for the people, for all the
8 stakeholders involved, nobody wants to have a
9 problem. And the way we do that is to maximize
10 the tools that we have when we do these transits.

11 So, I was a little bit snarky; instead
12 of use of NOAA's navigation services and data, I
13 said lack of NOAA navigation services and data.

14 And for 90 percent of the time, we use
15 charts the way everybody else. Vital, tides
16 charts are extremely helpful. But, again, we're
17 coming to this choke point and this choke point
18 is the transition zone between the ocean that's
19 very static and a shoreline that's very dynamic,
20 and then again, into the river systems where you
21 get things that are fairly static. Ninety-five
22 percent of all inland navigation that Vitus does

1 I'm going to say has not changed over my
2 lifetime. But the transit zone has subtle
3 changes in almost every location and almost every
4 year.

5 So, this is the ask slide. And, the
6 ask slide is, there is a lot of information
7 that's available out there. And when we do a
8 typical voyage plan, we like to have senior
9 captains, because senior captains have experience
10 and they have judgment. They have knowledge of
11 local conditions. But captains are actually a
12 bit of a challenge because they come and they go,
13 and so you really can't rely on an individual
14 with a 100 percent certainty.

15 So we try to create institutional
16 knowledge which, again, would be great if NOAA
17 could help us fill that in, because what we
18 mainly use are track lines. And those track
19 lines, as has been mentioned earlier with the
20 subtle changes, those are of dubious value as
21 time goes on.

22 So, again, to avoid these dangerous

1 parts around the edges, we need to use everything
2 that we can. And, on my next slide, it talks
3 some about the Bridge Resource Management.

4 But one of the things that, as I've
5 spoken to the NOAA folks over the years, is, you
6 know, the idea that every chart is a gold
7 standard and nothing should be on the chart
8 that's not verifiable.

9 And I think that the mission of NOAA
10 in a lot of places where you have static
11 information that that is absolutely critical and
12 weather reports where you need, you know, super
13 good data, that's true.

14 But this is, actually, in western
15 Alaska where we work, perfect truly, truly is the
16 enemy of good. And it's not even good; fair
17 would be acceptable. And where fair isn't
18 possible, anything is better than nothing.

19 And so that's what we're doing, we're
20 filling in these nothing places with other data
21 that's coming to us from a variety of sources.

22 VICE CHAIR SAADE: Ten minutes.

1 MR. SMITH: And just one more thing
2 about using any other source: these are areas
3 really that don't have cell service, typically.
4 And so you have sat service. And we have
5 satellite broadband, but it's very expensive.
6 And just for an idea, each of our tugboats that
7 support between four and six crew members, we
8 usually pay about \$3,000 per month of operation
9 just for broadband service. And that is with
10 very limited browser use.

11 So, we don't have access to a lot of
12 the internet sites. And, as mentioned before, a
13 lot of them, they're very broadband -- they're
14 heavy, they're data heavy. And so, using a lot
15 of sources is difficult.

16 MR. SMITH: You've seen there's a
17 variety of folks -- this is what Vitus uses to
18 take a look at what we have.

19 This is a place called Kongiganak and
20 it's in the Kuskokwim Bay. And Kong has a
21 variety of approaches. And this just gives you
22 an idea of what we work with.

1 So, the NOAA charts, just white, and
2 it has a little indication there of green, and
3 then we have a Google Earth where you can look at
4 the photography and get a little finer point on
5 what that entrance is.

6 And then we have track lines. These
7 track lines, again, can be internal or external.
8 And then we have a lidar map, but the lidar
9 typically doesn't show the information that you'd
10 get at low tide.

11 So, that is what a typical voyage plan
12 is and kind of the data source and the things
13 that we go and look at before we make a transit
14 and the things we try to provide our captains.

15 So, thank you very much. A picture of
16 one of our village locations. So, again, just to
17 reinforce the facts that going to a dock is an
18 extremely rare luxury. This is about 98 percent
19 of our deliveries.

20 Thank you.

21 (Applause.)

22 LT BUESSELER: I'd like to thank all

1 of our panel for staying nice within the time
2 limits. We have plenty of time for discussion
3 now. So, I'll hand it back over.

4 CHAIR MILLER: Actually, Bart, do you
5 want to sort of coordinate the discussion for
6 your panel?

7 LT BUESSELER: Happy to coordinate it.
8 At this point, sort of open, we have the entire
9 panel of experts. So, if you have any questions,
10 comments, now is a great time to --

11 RDML SMITH: I'll start off. Thank
12 you for all the really great, you know, specific
13 examples of needs. And, you know, for every one
14 of the examples you showed, there's probably ten
15 more that are like it. And so, you know, Bart's
16 job is to find those other ten. To not only take
17 note of the one, but to find the other ten.

18 One thing I did note is that when I go
19 to speak to your congressmen about our program,
20 they always start off by beating us up about the
21 fact that only 4.1 percent has been mapped to
22 modern standards. But none of you mentioned

1 percentage as being important. You've mentioned
2 specific examples of very small areas that
3 wouldn't budge us off 4.1 percent, but that are
4 examples.

5 So, I think I just want to observe
6 that the value and the percentage are not always
7 in alignment there. So, if it's a glacier face,
8 that's a small project that has really high
9 value. If it's the last mile, that has really
10 high value, but it has no appreciable area. If
11 we want to push the performance measure, we're
12 going to survey off where it's deep and easy.

13 So, I think I just wanted to note that
14 in public, because I think it's really important
15 to note. So, we are committed to surveying
16 everything, but we really need to -- not
17 everything has the high value.

18 So, I'll let others have it.

19 CHAIR MILLER: I wanted to ask the
20 folks that actually drive around in these waters
21 a lot, do you have ideas of how you could help?
22 Crowdsourcing was up there a couple times.

1 You're the ones that go into these areas and know
2 them. Have you thought of, or do you do any
3 surveying on your own? I mean, obviously, you
4 have echo sounders. Any of you, Angie or Carl
5 or, I'm sorry --

6 CAPT THROWER: Well, at Allen Marine
7 Tours, we don't do any surveying of our own.
8 It's definitely a lot of shared knowledge on the
9 water-based community out there. We have a lot
10 of historical data, I suppose, and a lot of
11 guesstimates, but we don't have any way to do the
12 level of surveying, especially in areas like
13 Glacial Arms, like at the face of Tracy Arm, it's
14 very challenging. There's so much glacial silt
15 in the water, we don't quite have the equipment
16 to get an accurate impression of what that bottom
17 looks like.

18 There's so much glacial till, and that
19 glacial silt is a very fine sand. It stays
20 suspended in the water, it makes it very
21 difficult to get accurate depth readings. So, as
22 much as we would like to, we can only get depth

1 readings to a point.

2 It would be very nice to have the more
3 accurate picture of that. But in certain areas
4 where there are shifting sandbars, of course,
5 other vessels that we do know transit through
6 that area, we'll share information with, pre-
7 season, of course.

8 But there's no -- I guess there's no
9 broader public access to that. So recreational
10 users of that area might not necessarily be aware
11 that the sandbar has shifted, and they might not
12 be as aware of the maritime, you know, the
13 maritime community at large that would eager to
14 share that information with them.

15 MR. SMITH: I'll speak to
16 crowdsourcing. Crowdsourcing, I think it has a
17 lot of great potential to it. There's a company
18 called Olex out of Norway that has taken some
19 North Atlantic data and really aggregated it
20 well. It's also used by the crab and other trawl
21 industries in the Bering Sea to get the very best
22 picture of the fishing grounds that they can.

1 So, what we need, I believe, is sort
2 of a baby version of that for commercial vessel
3 tracking in and out.

4 Ed Page and the Marine Exchange, and
5 now that AIS is mandated I think beginning of
6 last year for just every commercial vessel, you
7 have a really good indication of what I'll call
8 the rabbit trails.

9 And we understand, and I think we
10 don't need a gold standard chart. And that's
11 very difficult and it's really a waste of
12 resources to chart much of Alaska where we don't
13 operate.

14 So, I think that what we have now with
15 crowdsourced data and being able to look at those
16 paths and say, okay, let's just say for a 100
17 yards on either side of that rabbit trail is a
18 great place to start your survey, and just, you
19 know, do that 100th of a percent and it would
20 make our lives a 100 percent better.

21 DR. MAYER: I want to follow up on the
22 crowdsourcing question. And I agree with you

1 totally. An example like Olex I think has done
2 wonders in the North Atlantic. But there, there
3 is a crowd; and here, the crowd is very small.

4 And I wonder if there's a middle
5 ground. And I'm curious about, in each of your
6 constituencies, how you would react to the idea
7 of carrying an authorized and authoritative black
8 box that has gone through some sort of
9 certification process and would be relatively
10 inexpensive but then could provide to NOAA or
11 others data that is one step above the dirty
12 crowd, but now something that has some level of
13 authoritativeness to it. I'm just curious what
14 your reaction would be to that.

15 MR. SMITH: I'll start out, but, Bart,
16 I was just wondering if you were going to
17 moderate the questions here?

18 LT BUESSELER: If you guys are jumping
19 in, that's fine. If people are too quiet, I'll
20 start calling on you.

21 MR. SMITH: Okay. Yeah, I've always
22 been an advocate for our industry and the

1 industry players.

2 There are some interesting attitudes
3 out there where a few companies and a few
4 captains have actually said that their special
5 advantage is navigation and they weren't anxious
6 to share because they didn't want everybody to
7 know their secret paths.

8 But I would say that that attitude is
9 less and less with each year goes by and as these
10 captains move into administrative positions and
11 now they have to go out and hire their
12 replacement, they're finding out how difficult it
13 is to bring these people up and give them the
14 information to safely navigate.

15 So, as far as my company goes, we'd be
16 delighted to contribute to any better
17 information.

18 MS. LEACH: I don't think too many
19 fishermen would be overly excited. Most of them
20 really don't like people knowing exactly where
21 they're going or where they are at any given
22 time. So, I mean, we have a hard enough time

1 with observers on our boats. So I think it would
2 definitely be a concern.

3 MR. SMITH: I'll jump in there, and I
4 think that that, again, reflects a lot of the old
5 school ideas. But the truth is now, with AIS,
6 none of that's secret anymore. So, it's really
7 more attitude than reality unless, you know, you
8 turn off your AIS.

9 MS. LEACH: I would just jump in and
10 say, the majority of the commercial fishing
11 vessels out there do not have AIS because they're
12 under the footage required to have it.

13 MR. SMITH: I guess I'm thinking
14 Bering Sea where the fishing vessels are
15 typically larger.

16 LT BUESSELER: Any other comments?

17 CAPT THROWER: From a passenger vessel
18 standpoint, I think that any potential
19 partnership that we could have with NOAA would be
20 really exciting. One, to be able to, you know,
21 aid navigation in the southeast region of Alaska.
22 But what a great thing to share with the guests

1 that we take out with us, that NOAA
2 participation, that partnership would be a
3 fantastic thing to share with more people. So
4 I'd definitely be interested in hearing more
5 about that if that's possible.

6 LT BUESSELER: I believe we had a
7 question from Colby.

8 MR. HARMON: So, I'm Colby Harmon.
9 I'm cartographer from the Coast Survey, and I'm
10 just wondering, all the examples that you've
11 showed seem to be paper charts or raster digital
12 versions of paper charts.

13 And my question is, do you ever use
14 electronic navigational charts, ENCs? And, if
15 not, what would it take you to make that
16 transition?

17 MS. LEACH: Yes, we definitely use a
18 lot of different systems that are not just paper
19 charts any longer.

20 CAPT ANTONSEN: Yeah, we use every
21 form of electronic navigation chart that exists,
22 every layer, every aspect of a layerable vector

1 chart. We have some issues with the vector
2 charts and the quilting of them, that
3 information, especially in areas where you go
4 from a small-scale chart to a large-scale chart.
5 We're still dealing with the same data that goes
6 to build a raster chart on a vector chart. So
7 there's some issues with quilting and things with
8 that.

9 There's also some issues with what's
10 visible on a full presentation of a vector chart.
11 That has to do sometimes with the software
12 provider. But there's sometimes nothing better
13 than alternating back and forth and getting a
14 quick look, overview at a raster chart that'll
15 show shallows in a format that you're expecting.
16 Whereas, it can get lost in the blue, you know,
17 of the limits that an operator puts on depths
18 for, what's a safety contour? What's the shallow
19 contour? What's that?

20 So, there is some issues right now
21 with meshing vector charts in a display.

22 So, we use everything and I think most -- all the

1 tugboaters I know, most all mariners, even the
2 ones that are out there fishing using their cell
3 phone, the charter boat guys using their cell
4 phone to go find the hot spots and drift jig for
5 halibut off Point Alava and Ketchikan, they're
6 using electronic charts.

7 CAPT THROWER: Allen Marine, as well,
8 we utilize the electronic charts. We were
9 actually one of the first companies, passenger
10 vessel-wise, to implement AIS throughout its
11 entire fleet. So, we certainly like to be on the
12 forefront of what's possible for our passengers.

13 CAPT ANTONSEN: That's a good plug.
14 (Laughter.)

15 MR. SMITH: Just a quick answer is
16 that looking at bad information with a better
17 magnifying glass isn't helpful.

18 (Laughter.)

19 MEMBER MAUNE: I'm Dave Maune. NOAA is
20 currently in the process of conducting a 3D
21 Nation Elevation Requirements and Benefits Study.
22 And that gives many people the opportunity to

1 identify what their requirements are for near-
2 shore bathymetry, far-shore bathymetry and, more
3 specifically, to state what their benefits would
4 be if they actually received what they said they
5 needed. And it's that dollar benefit part that's
6 the hardest.

7 My question to you was, were any of
8 you part of the 3D Nation questionnaire process
9 that has recently been completed?

10 None of you? Okay, thank you.

11 CAPT ANTONSEN: Did we just sign up
12 for that survey mailing list?

13 (Laughter.)

14 MEMBER MAUNE: Well, I guess we'll
15 think about that.

16 I should say, if you did take it,
17 would you be able to document dollar benefits as
18 a result of getting better bathymetry? Or would
19 you be part of those that say, unable to estimate
20 that?

21 CAPT UCHYTIL: I think, you know,
22 given the opportunity for the coastal engineers

1 and the marine engineers to have greater access
2 to data, they'd be willing to pay for it and have
3 that discussion.

4 So, I think we don't know what's
5 available. But if there's a product that can be
6 pushed out and shared with the engineers in
7 Alaska, certainly, most companies are willing to
8 pay for good data when they need it.

9 MEMBER MAUNE: Yeah, we're not even
10 asking you to pay for it. We're asking you to
11 say what would the dollar benefits be to you if
12 you receive what you -- what would your annual
13 benefits be in dollar terms if you receive the
14 data that you -- the bathymetry data you say you
15 need?

16 If you're able to estimate the dollar
17 benefits without even having to pay for it,
18 that's about all we would ask for at this time.

19 MEMBER PAGE: I'll comment on that for
20 a second. L.A. and Long Beach have been talking
21 about the draft with a tanker and how much they
22 can save. It's an easy one to quantify.

1 In the meantime, we're trying to
2 quantify accidents you prevent. It's very hard
3 to quantify accidents you prevent. And that's
4 what I think one of the problems with some of the
5 issues here as far as getting the numbers.

6 I was also going to say that, in
7 Alaska, I think we -- if you look at the lower
8 48, you push your VHF radio call for help, the
9 Coast Guard is going to hear you. In Alaska, it's
10 like 90, 85 percent of the area, they're not
11 going to hear you.

12 So, I mean, the reality, Alaska does
13 not have the resources like you have in the lower
14 48. And so we're kind of used to kind of
15 cobbling things together. We don't wait for the
16 gold standard, some have mentioned. We need some
17 capability.

18 I remember a couple years ago, Admiral
19 Thomas from the Coast Guard said, well, you need
20 something like a maritime Waze. I had no idea
21 what Waze was because I've never been in traffic,
22 for years anyway. But I get Waze is an app that

1 you can see what other cars are doing. You're
2 basically crowdsourcing information.

3 But, to some extent, we're doing that.
4 We're crowdsourcing information internally. We
5 also realize that we're not going to go from four
6 percent to 100 percent charting of Alaska waters.
7 You have to kind of triage and prioritize and,
8 you know, look at it.

9 And I know NOAA's doing that. Their
10 decisions are based on now real-time or recent
11 information on vessel transits, and say, well,
12 we'll start with these areas.

13 And the Coast Guard and NOAA's worked
14 together on prioritizing the areas based on the
15 most maritime activity. And so, that's good.
16 They've been responsive to that. And, even when
17 I was in the Coast Guard, we had some incidents
18 in Tracy Arm where the charts didn't reflect
19 reality. They were right on it and they went and
20 surveyed it and got new charts.

21 They did it recently up in Kotzebue
22 area, whatever. So I think they have been very

1 responsive. It's just a huge area. It's
2 Mission: Impossible everywhere. So, we've going
3 to have to give them information to prioritize.

4 I know Mark Smith has done that and
5 NOAA did, you know, do that near Nunivak Island.
6 And, unfortunately, they didn't complete the work
7 before this tanker ran aground, but it wasn't a
8 big incident. So, all that stuff's underway.

9 Just to clarify on the AIS
10 requirements, because sometimes it's -- it's
11 changed over the years, and so there's some
12 confusion on who's required and not required to
13 have it, and what have you.

14 All commercial vessels over 65 feet
15 have to have AIS, fishing, whatever. There are
16 other vessels, like tow boats over 26 feet more
17 than 600 horsepower, that have to have AIS. So,
18 the different layered requirements to what --
19 high-speed passenger vessel or not, what have
20 you.

21 But we're finding that a lot of
22 vessels, even fishing vessels, they may not want

1 to have them all the time, a fishing vessel less
2 than 65 feet, but there are out there at night on
3 anchor, or if they've got their nets out and they
4 see cruise ships off in the distance, they like
5 to have AIS so the cruise ships can see who they
6 are and they can contact on the radio and what
7 have you. I know fishing vessels are also
8 putting AIS buoys on their nets so they can find
9 their nets and others don't get fouled in that.

10 So, AIS is just evolving. It's still
11 evolving. The requirements just last year
12 changed as far as the carriage requirements. The
13 technology is getting better. The Coast Guard
14 has conducted some studies, evaluations, what
15 they call a cooperative research development
16 agreement for what they refer to Arctic Next
17 Generation Navigational Safety Information.
18 And this will be a benefit to NOAA and the
19 maritime industry as far as disseminating more
20 and more information over AIS.

21 So, this is a new tool for
22 disseminating information, kind of like Frances

1 said that, instead of telling you -- I listened
2 to the broadcast last week, I was trying to get
3 some good information when I was down by Canada
4 and I finally realized all I was hearing was
5 radio talk about what the high in 1925 for
6 Ketchikan was 85. Like, what? Do I really care
7 about that? And the rainfall over the years and
8 all kinds of stuff, but I didn't care. All I
9 wanted to know was what the wind strength was
10 near me so I knew where our transit was going to
11 be going back up and which route we would take.

12 And I looked at Canada and I said, oh,
13 Canada has an AIS transmitting beacon and it
14 showed me exactly what the weather was 10 miles
15 away, which is a better indication than I had
16 anywhere else. The Canadians had AIS
17 dissemination data.

18 So, you know, delivering of good data
19 so mariners can make sound decisions is very
20 helpful, and that's how that tool is being
21 applied right now. And it's still evolving, but
22 I think it's -- we do have some unique challenges

1 up here. It's a huge region and, as we
2 mentioned, from Allen Marine, that how -- and I
3 didn't realize it, the mayor at one point said,
4 I'm the largest city in the United States and I'm
5 getting bigger.

6 And, I said, how are you getting
7 bigger? I said isostatic rebound, which I didn't
8 know what that meant. Because the glacier
9 retreats, the land comes up and that's why each
10 year we talk about the Mendenhall Bar as being
11 shallower and shallower because the glacier
12 retreats and the land increases. So we get more
13 property as a result. And I live on the water,
14 so I guess that's a good thing. I'm not really
15 sure.

16 But it's a dynamic area, as I think
17 many people are trying to point out. I found
18 myself on a chart looking and saying, there's no
19 water here, I'm sitting on top of a glacier, but
20 I'm really floating on water. So, that's another
21 discussion.

22 Allen Marine's going there. Pilots

1 are going there with their ships. You know,
2 recharting in these dynamic areas that are, you
3 know, basically become increasing waterways, is
4 it helpful for us?

5 And so, at the end of the day, I think
6 that we do have some information challenges and
7 we have a huge environment, as we try to keep on
8 pointing out with these slides. And we have this
9 new challenge to the Arctic that we want to make
10 sure we get it right.

11 So, it's kind of interesting suite of
12 challenges we have for NOAA, but I think they can
13 all be done. And we appreciate what you've done
14 to date.

15 But that's kind of some of my --
16 because I asked a lot of people to show up, I
17 appreciate you doing that and taking your time.
18 Because people are on the waterfront. You know,
19 Carl doesn't say anything about his past, but
20 basically he's a Coast Guard captain that
21 commanded a Coast Guard icebreaker and sailed
22 many, many years. And he's got a lot of time on

1 the waterfront himself.

2 And so, these are people that have
3 actually been operating vessels for years and
4 have a lot of hands-on knowledge and I really
5 appreciate all of them coming here and talking to
6 us, giving their perspective.

7 So, I'll shut up now.

8 (Laughter.)

9 DR. MAYER: I want to come back to a
10 comment that Mark made, and I was intrigued by it
11 and actually totally agree that something is
12 better than nothing in terms of getting a little
13 bit of information.

14 But as I put my academic hat on, I
15 also feel obligated that if I have many different
16 somethings and I know some of those somethings
17 are really, really good and others, I don't know,
18 but it's better than nothing, I feel obligated to
19 try to transmit that information, too, to
20 transmit information about the uncertainty
21 associated with that sounding or that
22 measurement.

1 And, again, in your communities, would
2 you want that kind of uncertainty transmitted
3 with the data? Would you use that? How would
4 you use that? How would you want it presented?

5 It seems to me a difficult -- it's
6 something we've struggled with for a long time.
7 But I'm very curious to hear your response to
8 that.

9 CAPT ANTONSEN: If you don't mind.
10 Well, from the standpoint of large ships and a
11 lot of people and a lot of fuel, bad data is
12 worse than no data.

13 If you're proceeding on a ship and
14 navigation with no data or uncertainty, then
15 you're going to proceed cautiously. But if you
16 have a false sense of reliance on poor data or
17 poor information that's wrong, that can lead you
18 into a decision or different procedure that's
19 maybe not quite as safe. It doesn't prepare you
20 to respond or react as you would if you didn't
21 have the certainty.

22 So, uncertain data, when it's a

1 critical piece of data -- and I think that's kind
2 of assumed. I think that's really understood by
3 everybody up here, when I say bad data is better
4 than no data. Yes, it is, for planning and, yes,
5 it is, for starting points, and, yes, it is, for
6 those things.

7 But when it gets down to critical,
8 like the 10 fathom shoal off of Haenke Island off
9 of Hubbard Glacier, you're going to have either a
10 high level of certainty that that data is good or
11 it's useless to you, you're not going to test it
12 out.

13 I mean, everybody else that's talking
14 about surveying, so far, I have not been able to
15 get any cruise ships on board with, hey, let's go
16 surveying, you know, with -- let's go, let's see
17 what's out there. You know, they just really
18 frown on that.

19 (Laughter.)

20 CAPT ANTONSEN: And I tell them,
21 there's lots of water, Captain, it's just spread
22 thin.

1 (Laughter.)

2 MR. SMITH: I'll respond, just sort of
3 in the defensive. Not necessarily bad data, but
4 incomplete data.

5 We're required to have skiffs aboard
6 our tugs and barges so that in the case we do
7 have a spill that we're able to tow boom and do
8 other oil spill response activities.

9 But what we really do with those
10 skiffs is we do soundings. And every single tug
11 and barge marriage has a skiff on it and it has
12 the most simplest of, you know, simplex depth
13 sounder on it. And we're literally trying to
14 find, you know, water that ranges from, you know,
15 two to eight feet.

16 And so, every boat has its little, you
17 know, hydrographic station on it that stays with
18 it. And, of course, the narrower we can restrict
19 that operation, the more cost effective it is.

20 So, we would prefer, right, to have a
21 lot of incomplete information to create our
22 picture, because that's really what we're doing

1 is we're making a composite. And we don't have
2 the choice of not going there. These are
3 essential services. We take fuel oil to these
4 communities, and, whether we have good or bad
5 information, we're going to get there and we want
6 to get there with the best information we can.

7 And I mentioned in one of these
8 presentations that some of the best information
9 that we could possibly get is very old school.
10 Let's take a photograph at low tide, take a
11 stereoscopic photograph at low tide, and give me
12 some basic ideas where things are.

13 And, again, that's not typical NOAA
14 hydrographic work, that's really out of the box.
15 But this isn't about having a gold standard
16 chart, this is about giving, you know, us some
17 information on a very narrow and short approach
18 to a river.

19 CAPT UCHYTIL: The two organizations
20 I'm representing, the Alaska Association of
21 Harbormasters and Port Administrators and ASCE
22 are both infrastructure-focused organizations.

1 And Alaska's a young state and we were
2 built on resource extraction, fisheries, mining,
3 and we're still growing and we still have the
4 opportunity to build ports and infrastructure
5 throughout the state. And it's important that
6 our engineers have the best information
7 available.

8 You know, a foot from isostatic
9 rebound or six inches makes a difference when
10 you're designing a harbor, a launch ramp.
11 Throughout the state, ASCE needs better than just
12 okay data to really be successful and build
13 facilities that are deserving of the communities
14 we serve.

15 CHAIR MILLER: Given the quick changes
16 that happen in some of these areas, how long
17 would a chart be good for?

18 Let's say, NOAA goes in there today,
19 in some of these areas, it seems to me it may be
20 weeks, I don't know, months. You know, what's the
21 change rate in many of these areas?

22 CAPT UCHYTIL: I can speak for

1 Juneau, and isostatic rebound is somewhere about,
2 you know, a foot a decade.

3 CHAIR MILLER: Is that glacial
4 shoaling and things like that? The silting and -
5 -

6 CAPT THROWER: The silting would
7 depend more on the area, how much outflow there
8 is in a particular area.

9 Like an area, say an area like
10 Gastineau Channel where you have run-off from the
11 Taku, you have runoff from the Mendenhall, all
12 shallowing up in a very, very shallow area, very
13 high current area. That's going to be changing
14 in a lot more of a rapid fashion.

15 Or a place like Echo Cove
16 realistically is going to change a little bit
17 more quickly than other areas, like say the Tracy
18 Arm Bar. So, the Tracy Arm Bar heading into the
19 Fords Terror Wilderness allowing access to the
20 south and north Sawyer Glaciers, that's going to
21 be a little bit more stationary. You do have
22 high, high glacial outflow but you have a lot

1 deeper water in that area as well.

2 So, an area like that, it's going to
3 be good for decades. But when you're talking
4 about glacial recession, like the Dawes Glacier,
5 the South Sawyer Glacier, it really depends on
6 the stability of the ice field.

7 But what we have seen in the last
8 several years is South Sawyer Glacier galloping
9 back. And it did that in 2007 as well. And so,
10 realistically, about a decade. Hans, would you
11 agree, in that area?

12 CAPT ANTONSEN: Yeah, I think so. I
13 think it's right. I think they do vary but I
14 think local knowledge can really give you an idea
15 of what the longevity and usefulness is.

16 And then the frequency of getting
17 surveys, like you say, you're looking for a
18 priority, or we call it profiling. Where are
19 people going? Let's help them get there safer.
20 Where are they going regularly? How many people
21 are going out? Are a million people or half a
22 million people going there every summer now?

1 That's an area that probably bears stronger
2 scrutiny. An area that's uncertain bears more
3 scrutiny than an area that's static, like
4 currents in Gastineau Channel and Juneau Harbor.
5 Why are there so many sensors and current
6 sensors? Because it's unpredictable.

7 Ketchikan Harbor? We don't have any
8 current sensors, it's predictable.

9 So, reasonable allocation of
10 resources, frequency and survey period, I think
11 can be dictated by the local areas.

12 You know, up north, you can see all
13 the rivers and things, boy, that changes so fast,
14 but -- so, I think it's dynamic but they each are
15 unique and those questions can be answered as far
16 as is it worthwhile and what frequency to
17 allocate resources.

18 MR. SMITH: And I'd like to follow up
19 just quickly. I sometimes feel like that the
20 dynamic nature of a lot of these entrances are
21 somewhat used as an excuse not to do anything.

22 And that's what I would like to avoid,

1 is that I think it's really a challenge for us as
2 industry, and really a challenge to NOAA, is to
3 rethink, you know, how we provide navigation to
4 mariners.

5 And I really do think that, you know,
6 if you had a way to compare this crowdsourced AIS
7 information with what the chart says, it really
8 kind of brings an ability to look at very small
9 areas and things that could be done to provide
10 updates.

11 Because a historical excuse is, "oh,
12 that's going to change anyway, so let's not do
13 anything," because we can't redo a massive chart
14 rebuild, right, every year.

15 And that's, of course, true to the
16 gold standard. But I don't care about 99 percent
17 of the information on that chart. I need just
18 the entrance information, and that really can be
19 hit with high specificity through the use of AIS
20 data.

21 MEMBER LOCKHART: So, this is a little
22 bit of a follow-up to Larry's authoritative box,

1 and also the fact that we tend to focus on
2 vessels as a solution to a lot of the problems we
3 discuss on this panel. And I'm thinking mainly
4 about Mark's problem and the fact that you
5 mentioned that sometimes the best solution is
6 taking a photo at low tide.

7 There are ways now to using structure
8 from motion and a really cheap drone with a
9 camera to get elevations pretty quickly just by
10 running some images through some software. That
11 may be a better way to get quickly that changing
12 low water area.

13 Obviously, you're not going to get
14 underneath the water, but where the tide change
15 is significant enough that you can do something
16 as low water with just a small drone. It would
17 be an interesting solution to have a drone rather
18 than a skiff doing some of that work for you.

19 And I'm wondering if NOAA's though
20 about using drones in Alaska as well to do just
21 that. The data's not going to be as accurate as
22 your typical NOAA product, but for change

1 detection in some of these smaller channels it
2 might be kind of a useful solution.

3 RDML SMITH: So, I'll take that, since
4 you sort of asked NOAA. And I will say that
5 Terrasond, working on behalf of NOAA, has done a
6 lot of innovative work with drones for mapping
7 intertidal areas.

8 Now, it's been in the context of sort
9 of more traditional shoreline verification rather
10 than this community resupply landing spot
11 application.

12 But certainly the technology and the
13 application are very well matched. And, you
14 know, the beauty is you don't need to get a whole
15 boat there. You can show up with an expert or
16 there's probably already an expert there that
17 could do some of this.

18 And the real magic is in the
19 processing afterward. So, we're not really in
20 the public comment period, but I would invite you
21 to talk to Tom Newman at the break, too, about
22 his experience with that.

1 MEMBER GEE: Yeah, Lindsay Gee. I
2 just have just a comment regarding we talked
3 about the follow-up from Carol, but also the non-
4 authoritative data, it would seem that when you
5 say, you know, all of you, I think, expressed
6 that you'd like the best available in some sense.

7 But it would seem the current charts
8 aren't the kind of vehicle you need. I mean, if
9 they're going to be, you know, there's going to
10 be lag time in that and they don't get updated
11 enough, you know, and all of those issues.

12 So, is there another way that that
13 good enough data could get distributed, apart
14 from just internally having track lines you save
15 and all of those sort of things? Whether that be
16 shared or it's not shared, you know, is there a
17 way to share it maybe? So those that want to
18 share it can make it public and those that don't
19 can still have access.

20 You know, but maybe the chart is not
21 the vehicle for transmission of that below the
22 kind of gold standard data. And I wonder if you

1 had any comments on that, both from the panel and
2 also NOAA?

3 Just to follow on what I mean, I
4 guess, is that we know there's so much to do, we
5 know there's so much charting, and it's kind of
6 priority to get that information out.

7 So, with GIS technology or whatever it
8 is, there's kind of technology that allows you to
9 get that -- you mentioned Google Earth and other
10 things. But there's technology that certainly
11 allows you to show that. And even with the pilot
12 units and the non-ECDIS kind of charting systems,
13 you know, you can add layers and those sort of
14 things.

15 So, it's trying to get it out quick
16 without having to wait for then the chart, so you
17 can all have access to it in this region because
18 it's obviously a bigger issue here than in other
19 areas around the country.

20 MR. SMITH: I'll jump in and just say
21 that, yeah, creating a new chart for every
22 change, under the typical, the historical

1 paradigm, is absolutely impossible.

2 So, it's going to require some new
3 vehicle to get this information out. And, for
4 us, with our very shallow draft, you know, it's
5 an alluvial plain out in western Alaska, and in
6 some places we have, you know, varying from four
7 feet of tidal differentiation to 27 feet.

8 Again, I've had, you know, folks from
9 NOAA say we really don't care about anything
10 that's above three meters below mean low water.

11 And for Vitus, for my company, we
12 absolutely don't care about anything there. I
13 mean, everything that we care about is in that
14 transition zone which is above what NOAA cares
15 about.

16 And then you have USGS that cares
17 about the coastline. So, literally, we have this
18 disenfranchised section of the earth, right, that
19 is our most critical part for our navigation and
20 to provide our service.

21 So, that's, you know, my ask of you
22 folks, is what can we do different? Because this

1 is not a chart update issue, it's much more
2 complicated. But the great news is that, in our
3 modern age, we do have a tremendous amount of
4 data and it really just is finding that
5 department or, you know, the subdivision of
6 government who will take the responsibility for
7 that transition zone.

8 And so, you know, I naturally think,
9 at a NOAA meeting, I'm going to say that that
10 organization is NOAA and I would love them to
11 grab on to that and take it.

12 RDML SMITH: Well, I'll jump in on
13 that.

14 So, the four meters thing, that was to
15 keep our hydrographers from trying to count every
16 rock in Alaska in areas where nobody cared.
17 Right? And so that was simply to try to keep
18 them moving so that we could get something done.
19 It's not a blanket rule, and I'm sorry that you
20 got that impression.

21 But, that said, you know, you've also
22 identified that our tools are not the -- our big,

1 industrial-type tools are not well-gearred to that
2 area. Now, you know, bathymetric lidar is. To
3 some extent satellite-derived bathymetry could
4 be.

5 And so we've got some tools, but I
6 wanted to get back to Lindsay's question and
7 really to say I've not given up on the chart as
8 being able to be nimble. Right?

9 Just four years ago, we had additions
10 of charts and we held information back in order
11 to get it on the next edition, and we wouldn't
12 publish it.

13 What's today? Tuesday? Thursday, you
14 know, we'll have 150 charts coming out with new
15 information on it. Some of that information is
16 just weeks old. And so there's nothing, you
17 know, in our GIS-based system that we're in
18 today, there is nothing that keeps us from doing
19 that.

20 Now, we want to make sure that we
21 don't put it on, take it off and, you know, be
22 willy-nilly about it and keep our quality up.

1 But there's nothing structural about the chart
2 that makes it not that nimble.

3 Now, there may be parts of our
4 organization that are not that nimble yet, but
5 we're getting there, we're getting there on that.

6 So, I guess I just wanted to push back
7 on that notion a little bit. And we do envision,
8 you know, the chart being the right way to carry
9 information, you know, that may be quite fresh.

10 CAPT ANTONSEN: So, about three years
11 ago at a meeting in Seattle, I was sitting at a
12 table with -- or sitting in a chair with James,
13 then-Commander James Hauck, who lives here and
14 works in Juneau.

15 And we heard a similar discussion and
16 we were talking with all the brains of people who
17 gather the data and do the surveys and the
18 scanner, get the information. And in the same
19 room were the software developers who provide
20 NobleTek, CIQ, all these different things.

21 And there was a disconnect there from
22 the people who had the data and the people who

1 are trying to be able to make it usable in a
2 graphic, usable way to the public. And there was
3 a disconnect.

4 So, James and I looked at each other
5 and said, why don't we get these guys together
6 for lunch, invite them to lunch?

7 So, we invited them to lunch and then
8 we stepped out of the room. They didn't need to
9 talk to us, we were like the end users or
10 whatever. But what they needed to do was talk
11 together.

12 If it's not the chart, thinking
13 outside the box of what's the medium of getting
14 the information to the user and in a format that,
15 when it's shared, it can be used by many software
16 providers.

17 And then those software providers have
18 the economic -- you know, will people use it, do
19 people want it? Yeah, people want it a lot, and
20 that will drive their end of the economics of
21 actually making it happen.

22 But those two entities need to talk so

1 that what can be given is given in the method and
2 in a manner and format that can be used and can
3 be then disseminated out to the public.

4 MEMBER GEE: Can I just comment again
5 on that? And I acknowledge what you're saying,
6 and I think we've seen a great, you know, move
7 forward in that.

8 But I would also say, Hans, I think
9 it's maybe time you got back in the room with
10 them, because you have other requirements that --
11 and I think the chart provides that baseline.
12 And I would see that it is those manufacturers
13 that want to give you the capability now to be
14 able to add what you need.

15 So, whether it's Mark, you know, being
16 able to put his tracks into that so he can -- if
17 the manufacturers are providing you with that
18 base level knowledge that's from as good as NOAA
19 can give them, then I think the next step is to
20 be able for you to add that. Or an organization
21 to add that, whether it's, you know, Mark and his
22 coastal region or it's Frances with fishing, so

1 they don't have to share, or you may want to
2 share it.

3 So, I think that kind of capability of
4 delivery to others in that kind of GIS and
5 electronic environment is something that
6 technology allows and that we just haven't -- and
7 it's interesting because I think you all kind of
8 want it but you're all doing it for different
9 purposes kind of thing. It's all to make money,
10 obviously, you've got to do it.

11 You know, you're sharing it for your
12 cruise industry or Mark has deliveries to make
13 and Frances wants to go fishing. But it's kind
14 of like, okay, how can we --
15 the technology is there to allow you to do it and
16 I think it does need the kind of users to get
17 back in the room with NOAA and the manufacturers
18 to try and refine those requirements.

19 Because I think we're all said back,
20 yeah, well, just leave it to them and make sure
21 NOAA gets the data and then we can move on and
22 everything can be sweet. But we kind of know on

1 the line that you can't get it quick enough, and
2 I think that's the -- or it's in areas where NOAA
3 really isn't going to do it, you know, in the
4 coastal -- in the dead man's land in between kind
5 of thing.

6 CAPT UCHYTIL: I just would like to
7 follow up real quick. And something I mentioned,
8 I spoke with the port director from the Port of
9 Anchorage, now called the Port of Alaska.

10 Eighty-five percent of all goods that
11 enter the state come through Anchorage. And they
12 believe they have a strong desire to have real-
13 time shoaling information, bathymetric
14 information updates.

15 And, I'm not sure if that's something
16 that is in the realm of possibility but that was
17 an issue that they would really like to stress.

18 And that the importance of that port
19 both economically and militarily, I think, would
20 merit additional resources to provide that
21 service if it's possible.

22 MEMBER MAUNE: Carl, I think it was

1 you had a slide in which you said you needed
2 something in Auto CAD DWG format, can you be
3 specific on what product it is and what's the
4 wrong format that you're getting it in now?

5 CAPT UCHYTIL: It would be for coastal
6 engineering, small boat harbor development and
7 recapitalization.

8 So, I don't know what the format that
9 we're getting, I assume it's just JPEG or some
10 other non-CAD available format.

11 MEMBER MAUNE: Okay, thank you.

12 MEMBER KELLY: Ed Kelly. We've heard
13 very similar stories in almost every geographic
14 region that we visited with certain unique local
15 applications as to what people want.

16 In light of that, I would kind of once
17 again kick back to IOOS that perhaps NOAA could
18 give IOOS direction that IOOS overall could
19 promulgate some type of a program or requirement
20 that would be in accordance with NOAA strategy
21 and goals in this area that could be passed to
22 the Regional Associations so that they could have

1 these types of meetings locally and find ways to
2 bubble this back up to us that we can really put
3 our arms around it.

4 Because this is a recurring theme
5 every place we go and we really need to find a
6 better way to respond to it than just every time
7 we're at one of these, we go yes, yes, yes, we
8 understand and there's limits to what we can do.

9 There are all limits to what we can
10 do. There are limits to what we should be doing
11 but there can be some local solutions that might
12 be worked out.

13 And if we're going to encourage that,
14 we should do it under a defined format or outline
15 at least from NOAA, passed down to IOOS and
16 delegate that down the chain and with the mandate
17 that it come back up the food chain and maybe we
18 find things that we can do.

19 So, just a suggestion.

20 CHAIR MILLER: Ed, one thing that we
21 talked with the IOOS leadership at lunch is we're
22 hoping that we will come out with a

1 recommendation about what we heard, particularly
2 this morning, that is, sort of a joint HSRP-IOOS
3 recommendation.

4 So, we'll discuss that a bit later.

5 Okay, are there any further questions?

6 MEMBER PAGE: Just for the panel, they
7 probably not know what IOOS is or whatever, it's
8 Integrated Ocean Observing System.

9 You're familiar with AOOOS which is
10 Alaska Ocean Observing System, so there's a whole
11 bunch of these things around the country.

12 So, IOOS is Integrated, it's just
13 something that we use in our alphabet soup
14 discussion here and other people are going, what
15 are they talking about?

16 So, that's what we're talking about is
17 this Integrated Ocean Observing System that
18 allows for some regional solutions Southern
19 California, Pacific Northwest, Gulf, or whatever
20 on the East Coast.

21 And that's what we've taken advantage
22 of in Alaska is we've AOOOS, Alaska Ocean

1 Observing System subset is kind of focused on
2 Alaska issues.

3 So, I think it's a kind of innovative
4 way for NOAA that gives them a little more
5 latitude in different regions. They kind of move
6 independently still under the same kind of
7 objective of NOAA, but be a little more agile
8 than trying to get a national fix everywhere.

9 They have some regional fixes that are
10 more tailored to your needs.

11 So, that's why I think when other
12 parts of the country probably are not talking
13 about we need to chart waters where icebergs or
14 excuse me, glaciers were before. We're the only
15 ones that really have this glacier issue.

16 So, AOOS can talk about that but
17 anywhere else in the country, they don't, it's
18 unique to Alaska.

19 So, anyway, that's what IOOS is, you
20 know.

21 (Off-microphone comment.)

22 MEMBER PAGE: Yes, I agree with what

1 it's saying, I just want to say why those subsets
2 and what IOOS is and why there's subsets and
3 there's also commonality and they're meeting
4 right now in the next room and they're sharing,
5 you know, ideas around the country saying that
6 would work with me also.

7 The one that probably doesn't work is
8 the glacier one, but that's okay.

9 CAPT ARMSTRONG: Thank you.

10 I'd like to ask Ms. Leach about depth
11 information. I suspect your father pretty much
12 knows how deep it is where he's fishing.

13 But in speaking for the fishing
14 community in general if you could, how -- you
15 talked mostly about weather and that's certainly
16 the most compelling and pressing thing you
17 probably deal with.

18 How would you like to see depth
19 information? How do you see it now or is that
20 not much of an issue for your constituents and
21 your members?

22 MS. LEACH: Depth is a very important

1 issue when it comes to navigation as well as
2 setting gear, depending on what type of fishing
3 you're doing. You are fishing in a certain
4 amount of depth.

5 And so, right now, fishermen rely on
6 charts that have the depth listed on them.
7 They're relying on their own fathometers on their
8 boats as well as, you know, the computer programs
9 that they may or may not have.

10 But, that is very important. Just a
11 quick story.

12 A few years ago, we were going through
13 and area that we had been through several times
14 south of Ketchikan, Garnet Point.

15 And we were charging out of the harbor
16 full speak ahead and we hit a rock in the middle
17 of the channel. And that rock was not on the
18 chart and, you know, we thankfully everything was
19 okay. We kind of just bounced right off it.

20 But, it was a super -- it was a low
21 tide and a minus tide. And, you know, once my
22 dad started talking to some of the other old

1 timers, they were like, oh yes, that rock's
2 there, it's just not on the chart.

3 So, it's -- you know, and then that
4 becomes one of those things where you tell
5 everybody you know, be careful, there's a rock in
6 the middle of the channel right there.

7 So, yes, depth is very important and
8 it's used quite regularly.

9 CAPT ARMSTRONG: And just to follow
10 up. Would you like to see depth in much higher
11 resolution than available on the charts? Would
12 you like a product that showed depth at, you
13 know, really tiny detail?

14 MS. LEACH: Absolutely. I think it
15 would be really beneficial. You know, what tends
16 to happen is, if you're going to go set your gear
17 in a certain amount of fathoms, you go to that
18 area and then you rely on your fathometer to
19 actually tell you what it is.

20 Because it doesn't usually pinpoint
21 the exact location where you are on a chart
22 telling you how deep it is so you're going to

1 rely on your fathometer.

2 But, if there was something actually
3 that listed the accurate depth, that would be
4 very helpful.

5 CHAIR MILLER: Okay, thank you, panel,
6 for a great discussion and great presentations.

7 (Applause)

8 CHAIR MILLER: It's now 3:30. We're
9 going to take a break and right after the break
10 at 3:45, we will have a chance for public comment
11 both from the audience here and on the webinar.

12 (Whereupon, the above-entitled matter
13 went off the record at 3:28 p.m. and resumed at
14 3:48 p.m.)

15 DR. KINSMAN: Here again, I believe.
16 We wanted to open up some questions to the
17 general audience while we still have our
18 panelists up here for a few minutes before we get
19 into the full formal public comment period.

20 But we started that, we have -- I have
21 Ashley Chappell here and she's just going to say
22 a couple words about some of the other events

1 going on this week to make sure that everyone
2 here at HSRP is aware of some of the other neat
3 federal coordination activities that are underway
4 here in Juneau.

5 MS. CHAPPELL: Hi, everybody. So, on
6 your agendas and hopefully as you heard today, we
7 have the Alaska Mapping Executive Committee
8 meeting here --

9 (Off-microphone comment.)

10 MS. CHAPPELL: Oh, okay. We can do
11 this wrap-up at the end, during the wrap-up.

12 DR. KINSMAN: Okay, so I guess we're
13 going to do public comment with questions first
14 stakeholders here then.

15 CHAIR MILLER: Actually, let me
16 officially announce because it's a federal thing.

17 We are now open for public comment
18 either from the floor or from the stakeholders
19 here present or from letters that have been sent
20 or from the webinar.

21 Are there any comments or any comments
22 here in the room that people would like to make?

1 Do we have a microphone?

2 MS. MERSFELDER-LEWIS: First we're
3 going to do questions for the panelists and then
4 we're going -- we have Rada is on the list and we
5 have another person on the list, we have two
6 people.

7 CHAIR MILLER: Okay, so, questions for
8 the panelists first, I guess.

9 Jon Dasler?

10 MR. DASLER: Yes, John Dasler, David
11 Evans and Associates, former HSRP member for
12 seven years, one of the charter members.

13 But, I guess a question to Captain, I
14 think you made a comment on that the cruise lines
15 weren't willing to pay for some of the surveys.

16 So, I know Seaborne has been looking
17 at some areas in Alaska where they're trying to
18 ships in and have inquired about surveys.

19 And, I guess a shout out to Admiral
20 Smith and NOAA that they were able to go back and
21 look at surveys, one of them was, I think, is
22 Aialik, the sill that were the glacial sill there

1 and they added some soundings to the chart.

2 And then, the other one was at Doran
3 Point I think in Harriman Fjord that they were --
4 MCD was able to go back and pull some additional
5 soundings.

6 But, I guess one of the questions to
7 the panel, too, and I -- maybe this got brought
8 up, so, it's not just the freshness of the data,
9 but also the scale, right?

10 So, I think that was the issue on both
11 of those charts. By the time it went to a raster
12 chart and even the ENCs at that scale, you just
13 didn't have the sounding density that was needed
14 to make those passages across the sill.

15 So, I guess one of the questions to
16 the panel is the scale of the charts, and think
17 that was like the sounding density basically, if
18 that would be more beneficial getting into some
19 of those areas?

20 And, I don't know if you're familiar
21 with the Seaborne efforts in some of those areas.
22 I know they were working with the pilots on that.

1 CAPT ANTONSEN: Yes, and I don't think
2 I was speaking for the -- I wasn't speaking for
3 cruise lines as a whole that what they would be
4 interested in paying for or not paying for.

5 But the rank and file, the big ships,
6 if they don't have data or surveys, they'll just
7 stay safer and they just won't go as close.

8 But there's a very distinct -- I think
9 what we're seeing is even a more distinct breakup
10 now, instead of ships of varying sizes from small
11 through medium to large, is very, very large
12 probably in scale lots of people and the
13 excursion ones that goes -- bridges the gap
14 between Seaboard, Sea Line and the Allen Marine
15 boats to Seaborne, Legend, Star Legend, you know,
16 those ones that are, you know, bridge the gap
17 between those and the Quests, Nat Geo Quest and
18 all.

19 Those are -- I would completely leave
20 it to them because they have a very specialized
21 interest in getting in close and then wanting to
22 have accurate charts for those areas.

1 They have to abide by the big rules of
2 the big ships, but they want to go on excursion
3 and that's what they go for.

4 But as to the question of scale, scale
5 is hugely important. I mean, just look at a
6 local place like Endicott Arm, I mean, Endicott
7 Arm, it's just this -- there's no resolution
8 there to go up there.

9 And you've got a 50, you know, you've
10 got a 50 fathom sounding and then you've got 300
11 all around it, and you've got just kind of an
12 approximation of the contour line there, that's,
13 again, one of those unproven areas that there's
14 no detail there.

15 It's not going to stop ships from
16 going but more detail in heavy traffic areas is
17 going to give more safety because you're going to
18 have a more precise understanding of what the
19 depths are, what the contours are, where the
20 rocks are.

21 So, when ice with bigger ships, it's
22 amazing how much room in the fjord the Bliss or

1 the Emerald Princess takes up.

2 I've never been up to the North Sawyer
3 Glacier with the Emerald Princess before and
4 apparently it fits because we managed to get
5 around.

6 But that scale is a huge -- would be a
7 huge help.

8 CAPT THROWER: Absolutely. Coming
9 from -- so, Allen Marine Tours, one of the -- one
10 of our kind of specialty tours that we do, we
11 operate with a lot of the cruise lines in those
12 areas, specifically talking about the fjords --
13 Tracy Arm and Fords Terror Wilderness Area.

14 I also represent us at WBMP which is
15 Wilderness Best Management Practices and TBNP
16 which is Tourism Best Management Practices as
17 well.

18 Now, WBMP is specifically focused as a
19 committee on looking at areas like the Tracy Arm
20 and Ford Terror Wilderness -- well, not
21 wilderness areas specifically.

22 It's a collaboration -- it's a

1 committee of people who operate in those areas.

2 Now, we've tried various things of
3 seeing -- keeping Endicott Arm a little more
4 exclusionary to the smaller vessels and having
5 the cruise lines predominantly agree to go to
6 Tracy Arm when possible, when permitted.

7 But the real fact of the matter, what
8 we're seeing, when Allen Marine Tours started
9 doing those specialty tours, the Endicott tours,
10 the Tracy tours 15 years ago, we were one of the
11 only companies do it.

12 Now, every single -- all of those
13 small cruise lines, all the major cruise lines,
14 all of the day boats, all the recreational users,
15 there is high traffic in Tracy Arm.

16 So, the more detailed we can be about
17 certain areas, if we can get better resolution on
18 that scope, what certain areas are like, it's
19 going to help improve the safety margins as
20 you're moving through the Arm.

21 And there's certainly areas in Tracy
22 Arm when you're going through the S-turns where

1 there's a giant mudflats area.

2 Now, in a fjord that is over a 1,000
3 feet deep, you wouldn't assume that out of
4 nowhere there's a mudflat area. But it exists.

5 And, knowing how close you can get to
6 that safely before you're running aground,
7 especially in a passing situation with
8 recreational users or those less familiar with
9 the area, that's really important to know where
10 your safety margins are at all times.

11 So, excellent question.

12 MR. DASLER: Yes, and I guess just a
13 shout out on the nautical charting plan, right,
14 and rework of the scale. So, that kind of input
15 is really important to get to NOAA.

16 So, as they're re-looking at scale of
17 charts and what that's going to look like for the
18 nation, that kind of feedback is pretty critical.

19 And then, just one comment, I think Ed
20 commented if only there was a Waze for the
21 maritime community.

22 But, there was a great presentation at

1 the Galveston HSRP for Active Captain which I
2 think that it was the same guy who started Waze.
3 Right?

4 But, that -- yes, it's on par anyway
5 with Waze. But, I was curious if anybody uses
6 Active Captain and, you know, it's a way of
7 reporting just like Waze is in the maritime
8 community where you -- and I know NOAA looks at
9 that data and assesses, you know, where there are
10 charting needs based on what's happening with
11 Active Captain, if people are familiar with that
12 and using it?

13 MEMBER SHINGLEDECKER: I would just --
14 Active Captain, it was when we saw in Galveston a
15 really interesting resource like that, they
16 changed ownership.

17 And the crowdsource nature of the
18 platform has changed substantially. So, there is
19 a gap right now in that area as far as that
20 crowdsourced platform.

21 CAPT THROWER: I think if I could make
22 a comment here.

1 There's been a lot of discussion about
2 crowdsourcing of information from commercial
3 professionals in the industry.

4 And I think that establishing almost a
5 Wikipedia like platform for navigation, I think
6 that has such great merit.

7 But I guess the question would be,
8 who's going to host that platform? If there is
9 any type of decision made that uses that data and
10 that decision ultimately results in a negative
11 outcome, where does that liability fall?

12 I think that's maybe where some
13 commercial operators would hesitate to actively
14 and openly participate in something like that not
15 knowing what the liability limitations are.

16 You know, being part of the maritime
17 industry, we all want to help. Every mariner out
18 there is there for the other mariners.

19 It's definitely a particular -- it's a
20 particularly great community to be a part of,
21 especially in Alaska. The cold water boating
22 community has a very, very different mentality.

1 You share, you help, you communicate, you guide.
2 We're more than happy to share ice reports.

3 Part of WBMP in the Tracy Arm area,
4 we're always sharing ice reports with everybody.
5 We're letting everyone know what those conditions
6 are like, ultimately affecting what decisions are
7 made by different cruise lines to go into which
8 particular arm.

9 And we're always happy to share that
10 information. But that's more just word of mouth,
11 it's not public access that could be relied on by
12 a less experienced user potentially to a negative
13 outcome.

14 So, I think there's -- it might be a
15 little hesitancy, and I can only speak for, you
16 know, I can only speak for myself, not the tour
17 industry as a whole, but I think I could see a
18 lot of commercial operators being a little more
19 hesitant to participate in that platform if they
20 don't know where their liability extends.

21 CHAIR MILLER: Any other questions
22 from the audience to the panel?

1 I believe there's a --

2 MS. KHADJINOVA: I have a quick
3 question or a comment.

4 I think there's a lot of good will in
5 the room. I think that there needs to be some
6 sort of a manageable action on the part of people
7 that do hydrography for a living on the part of
8 people who QA/QC hydrography for a living and
9 people who can contribute.

10 And maybe there's a way to meet
11 offline and so forth and come up with pros and
12 cons of what we can do with today's resources,
13 with today's equipment, but with a whole bunch of
14 energy and then provide a recommendation for the
15 next HSRP meeting so that that can be reviewed
16 and it could be a live conversation that's not
17 going to die here when you guys leave.

18 CHAIR MILLER: Could you please
19 identify yourself?

20 MS. KHADJINOVA: Oh yes, Rada
21 Khadjinova and I'm Fugro Alaska manager and we do
22 hydrographic charting for NOAA. So, definitely

1 much energy here, too.

2 I will just step over to the
3 microphone and do the public comment. Fantastic.

4 Thank you HSRP for choosing Juneau as
5 meeting location. I think the last panel was the
6 most lively discussion just from the quality of
7 the question and answers and discussion points.
8 So, thank you for that.

9 My name is Rada Khadjinova and,
10 compared to some of you in the room, I could be
11 called Alaska chechako. I only have 25 years in
12 Alaska under my belt.

13 I came as an exchange student and fell
14 in love with the state ever since and never left.

15 I work, as I mentioned, for Fugro,
16 Alaska office. I'm the General Manager. And,
17 Fugro is a global provider of geointelligence and
18 asset integrity solutions for infrastructure
19 projects, large construction and energy and a
20 long participant in activities in Alaska.

21 Prior to my work at Fugro, I held
22 management positions with state government,

1 academia and other private sector firms.

2 I've been and remain and active
3 volunteer for professional nonprofit
4 organizations and serve on various boards.

5 Most recently, I was appointed to the
6 Board of the Alaska Resource Development Council
7 which represents interests of Alaska major
8 resource industries, oil and gas, mining, timber,
9 fishing and tourism.

10 These industries make a great use of
11 geospatial data and so my interest in HSRP.

12 It's no secret that Alaska charting
13 backlog remains formidable, deserving your
14 continued vigilance.

15 However, this tough challenge has a
16 responsible owner.

17 Today, I want to address a need that's
18 yet to be adopted by a responsible owner. And as
19 we heard just during this panel, this is called
20 the dead man's zone, the transition zone.

21 But we call it Alaska's coast.

22 Alaska's coasts deserve attention. In addition

1 to having the longest coastline in the U.S. and
2 boasting the largest fishery in the nation,
3 Alaska is the only state with access to Arctic
4 waters.

5 In the coming years, we see numerous
6 opportunities and challenges that we've heard
7 about today and I'm not going to go over that.

8 But the future of Alaska's coastal
9 zone is of national consequence, impacting
10 national security, maritime transportation,
11 economic development and energy policy.

12 Growing Alaska's blue economy while
13 managing effects of climate change and sea level
14 rise and sometimes drop, will require charted
15 access to coastal mapping data which merges
16 shallow water, shoreline and coastal elevation
17 data sets.

18 These data serve users from across the
19 government spectrum, including tribal, state and
20 federal agencies enabling economic development,
21 coastal resource management and a fish and
22 governance of numerous coastal issues.

1 And while a comprehensive coastal
2 mapping program does not yet exist in Alaska,
3 stakeholder engagement to form on is well
4 underway.

5 This February, more than a 100
6 government and private sector participants took
7 part in the Alaska Coastal Mapping Summit.

8 As an output of the summit, and thank
9 you, NOAA for spearheading that, as an output of
10 the summit a strategic plan to build Alaska's
11 Coastal Mapping Program is anticipated for
12 release later this year.

13 It is also encouraging to see NOAA as
14 a newly minted participant or co-chair of the
15 AMEC Committee, and interagency working group
16 designed to maximize collaboration and efficiency
17 with which elevation data is acquired and shared.

18 We're beginning to see the same spirit
19 of collaboration for statewide coastal mapping
20 data sets that we saw a decade ago when we
21 started on topographic mapping of Alaska.

22 As we know from the topographic

1 mapping program, the path forward requires a
2 shared commitment among all stakeholders to
3 systematically collect authoritative data sets
4 that can be shared across user groups.

5 For the private sector, our commitment
6 is expressed in how we approach each project,
7 often integrating multiple technologies and
8 platforms to balance cost, quality, and safety
9 expectations.

10 This commitment is evident in many
11 activities including technical innovations and
12 new generations of sensors, advanced processes
13 that enable multi-stream data collections, novel
14 approaches that accelerate the collection pace
15 during short Alaska fuel season, in-kind data
16 contributions, and quality assessment of
17 crowdsource data, just to name a few.

18 It is important to know that data
19 needs should remain central to developing the
20 data specifications.

21 It takes time and effort to prioritize
22 plans, enable that integration and to develop

1 optimal data spec acceptable to multiple users.

2 The private sector is a great resource
3 for developing efficient scopes of work and
4 should have a seat at the table to provide their
5 professional input.

6 It should also be noted that, in
7 Alaska, environmental permitting has been the
8 longest lead activity for infrastructure or
9 resource development projects, taking anywhere
10 from 6 to 25 years or more with no certainty in
11 the outcome.

12 And while we see and applaud
13 administrative improvements in some agencies,
14 there is plenty of more to be done.

15 One of the best things the government
16 can do to reduce environmental permitting
17 uncertainty is to acquire authoritative baseline
18 data.

19 In this case, we're talking about
20 upfront collection of land and marine elevation
21 data.

22 This data depicting natural

1 infrastructure give regulatory agencies
2 information not only to make good management
3 decisions, but even equally important to
4 withstand legal scrutiny once decisions are made.

5 Every project in Alaska gets sued once
6 it's authorized by an agency.

7 Thereby reducing costs and schedule
8 impacts for all parties.

9 In addition, this data is relevant to
10 missions of many federal agencies and can be a
11 benefit research and private sector projects from
12 pre-feasibility to decommissioning.

13 The needs for coastal mapping program
14 are clear and very eloquently expressed here
15 today.

16 Here is what I would like to ask HSRP
17 and others who can positively influence coastal
18 mapping program implementation.

19 One: deliver systematic and
20 transparent updates on progress towards goals and
21 objectives stated in the Alaska Coastal Mapping
22 Summit Report and continue the Alaska Coastal

1 Mapping Summit on an annual basis.

2 Two: support and improve effectiveness
3 of an existing framework by which multiple
4 agencies can contribute funds and specify their
5 coastal mapping priorities.

6 Three: consider meaningful
7 contributions or inputs that State of Alaska can
8 champion to kick start the planning phase of the
9 program, recognizing its current economic
10 situation. After all, prioritizing data needs
11 and developing acceptable data spec is arguably
12 the longest lead, but also is the lowest cost
13 activity.

14 And, my favorite and the last one:
15 incentivize industry to come up with ideas for
16 authoritative data collections through
17 unconventional methods.

18 This can be accomplished through
19 competition of ideas with contract award or some
20 other notable motivation for the best solution.

21 And you don't have to go far, we
22 already have ideas and I would love to talk to

1 you about that.

2 Thank you.

3 What, no applause for me?

4 (Laughter.)

5 (Applause.)

6 CHAIR MILLER: Ed, this public comment
7 is in HSRP's packet -- in the packet that the
8 panel members have.

9 We have a comment from John
10 Warrenchuk.

11 MR. WARRENUK: Okay, thank you. Hi,
12 my name is John Warrenchuk and I am a senior
13 scientist and a campaign manager for Oceana which
14 is an environmental group. We are an
15 international group dedicated to protecting the
16 world's oceans.

17 I live here in Juneau. I've worked
18 here for 15 years. My knowledge of your working
19 group panel is a little provincial but I do
20 understand that one of the outcomes is that you
21 make recommendations to the NOAA Administrator
22 who was in the room here earlier.

1 So, a couple of the -- and I did look
2 over some of your past recommendations.

3 One thing, though, I do notice is
4 maybe not addressed as often in your
5 recommendations is data collection on currents.

6 And my job, you know, I'm mostly
7 concerned about everything that's living between
8 the top of the ocean and the bottom, including
9 the things that are growing on the bottom.

10 And, one thing that is lacking a lot
11 of ocean data sets in the meeting I go to is
12 scientists trying to develop these models to
13 predict changes and impacts is currents.

14 And so, in as much as you can make
15 recommendations to the Administrator on the type
16 of investment you need to do to collect the data
17 on currents.

18 And, you know, seasonal changes in
19 currents I think would be very helpful.

20 You know, and temperature as well.
21 You know, we're seeing in Alaska just a whole
22 litany of impacts from changing temperatures and

1 climate change.

2 You know, just yesterday, the Governor
3 had, you know, fishery disaster declaration for
4 Chignik which is a region in the Gulf of Alaska
5 which usually catches over a million salmon. And
6 this year, they caught a 128 salmon.

7 So, these kind of changes, not only
8 are they, you know, they're expensive, but they
9 are, you know, they are ending ways of life.

10 And in as much as this kind of data
11 that we collect now, maybe it doesn't pay off
12 right away in solving these problems.

13 And investment in, you know, our
14 future generations and how they can develop
15 models, develop ways to mitigate impacts, ways to
16 address some of these changes where these
17 investments are going to pay off.

18 So, with that, I'll close. I know
19 it's the end of the day here and thank you for
20 the opportunity to comment.

21 (Applause.)

22 CHAIR MILLER: We have a comment from

1 Guy Noll from the webinar. Admiral Smith is
2 going to read it.

3 RDML SMITH: So, Guy, I will introduce
4 Guy. Guy Noll is a software manager at Esri and
5 former NOAA hydrographer.

6 From Guy, the question is: "Regarding
7 the DWG issue, there is a new alliance between
8 AutoDesk and Esri for GIS plus BIM, specifically
9 for infrastructure and design."

10 These are all formats of CAD type
11 formats, just for --

12 "As most of this is urban focused,
13 Alaska stakeholders will need to participate in
14 highlighting the value.

15 "For more information, here's a story
16 map about BIM and GIS" and he includes a link to
17 that.

18 And, I don't know whether we want --
19 somehow we should just publicize the link. I
20 don't know whether we need to explore it together
21 right now.

22 But, thank you, Guy, for your comment.

1 Are there any on the -- for the
2 engineering format folks? Are there any nodding
3 appreciatively around the room about Guy's
4 comment.

5 All right, thanks, Guy, sorry you're
6 not here.

7 MS. MERSFELDER-LEWIS: So, there were
8 other public comments that are in the public
9 materials, both on the website and in your
10 packages, two letters and one report.

11 LT BUESSELER: So, I'm not going to
12 read them, but I will say that when we reached
13 out to some of the other marine operators in the
14 state, Kenai Fjords Tours out of Seward wrote a
15 very nice letter that should be in your packets
16 along with the Seward Chamber of Commerce, sort
17 of highlighting the same things that -- many of
18 the same themes we heard with Allen Marine Tours
19 of the significance of some of these small boat
20 operators that they're going near short and
21 especially sort of Seward as you get down towards
22 the Kenai Fjords region, those charts are 1-to-

1 80s and they're navigating very close to shore.

2 So, additional resolution on those
3 charts would be a huge benefit to their operation
4 as the common thread out of Kenai's letter.

5 Although it's a fantastic letter and
6 my description isn't doing it justice and the
7 Chamber of Commerce, just wanting to reinforce
8 that message of how these -- tourism is driving a
9 lot of their economy there.

10 So, the significance of that operation
11 supporting that has big benefits beyond just that
12 small tour boat operation. Well, they're not
13 that small but it helps everyone.

14 They mentioned the resurrection of the
15 Aialik Bays and that's sort of continuing down to
16 Kenai Fjord region and that's where the 1-to-
17 80,000 and tightening up into the -- what the
18 operators mentioned, that there were a few
19 discontinuities in the shoreline that they would
20 like to see resolved.

21 And, in the course of making a new
22 chart, we would be re-evaluating that data.

1 MS. MERSFELDER-LEWIS: Okay. Guys,
2 you wanted -- you have more -- many more details
3 about those, it's a long, much longer letter.

4 And one of those 30 or 40 pages.
5 They're in the -- they'll both be considered part
6 -- those will all be considered part of the
7 public record and you guys have them to review
8 and the Chairs and some leadership had them way
9 earlier to review.

10 So, if you want to make comments on
11 those, I know, Ed, you had made a comment to me
12 that this is very serious and important -- and
13 how important the HSRP meeting is because you
14 have people who really take that quite seriously
15 and send you letters.

16 CHAIR MILLER: Okay, I believe that's
17 the end of public comment unless anyone else in
18 the room?

19 John?

20 MR. DASLER: I just want to actually
21 give another shout out to NOAA on behalf of Scott
22 Frost. I don't know how many people are -- know

1 him, but he's a resident of Juneau, actually down
2 in Gastineau Channel, but we started working with
3 Scott several years ago and started bringing him
4 on on NOAA contracts.

5 And, he's built several vessels,
6 started Zephyr Marine and, you know, one is a
7 woman-owned small business and works for a lot of
8 the contractors.

9 But Scott's daughter, they were -- I
10 mean, they're a fishing family and in southeast
11 Alaska.

12 But his daughter, Courtney, a few
13 years ago, they were trying to get their halibut
14 quota and she bowed somebody's wooden boat out in
15 Sitka and they were about 20 miles, her and her
16 girlfriend and the plank sprung on the boat and
17 they were able to get a call out and be able to
18 get their immersion suits on.

19 And, the Rainer happened to be
20 transiting at the time and the Rainer put in a
21 launch and rescued Courtney and her friend.

22 So, there's a lot of I guess along the

1 lines of what the Lieutenant Governor is saying.
2 There are a lot of added benefits of NOAA's work
3 here.

4 I mean, also beyond just the charting
5 effort, the IOCM effort and the different uses,
6 but also just being there in those kinds of
7 situations.

8 And, Scott definitely wants to pass
9 along his thanks for saving his daughter.

10 (Applause.)

11 CHAIR MILLER: It's 4:20. We were
12 scheduled to start the planning and engagement
13 group discussion.

14 But, we also have time for it tomorrow
15 morning. Dave and Julie?

16 Let's spend 10 minutes on it right now
17 and we need to leave here at 4:30 I believe.

18 MEMBER THOMAS: All right, okay.

19 I think that right now is the time
20 that's allotted to really talk about the CO-OPS
21 strategic plan and the draft comments. Those are
22 in everyone's binders.

1 And, Joyce and Lynne, so my
2 understanding is that we should be submitting
3 these draft comments by the end of the meeting,
4 is that correct? Approved and voted on by the
5 Panel?

6 And so, all I want to really do is say
7 today is, if you get a chance, please read
8 through the comments because on the last day of
9 the meeting, we will vote and approve these as a
10 Panel and then submit them to CO-OPS.

11 And, I should go through them all?
12 Yes, I mean, I'm not going to read -- I don't
13 think I really need to read through these all
14 right now.

15 There are recommendations for
16 examples, more specifics. There's, you know, a
17 recommendation for org charts within CO-OPS.

18 There's make some of the goals
19 clearer.

20 They're pretty well spelled out on
21 that sheet.

22 And, of course, these are drafts. If

1 anyone has any additional comments, we can
2 definitely add them. I just was typing them up
3 here as I received them.

4 And you should all the CO-OP strategic
5 plan, too.

6 And so, yes, I think in general it was
7 considered a really good document it just needed
8 a few more specifics and maybe some NOAA org
9 chart to let them -- people were interested as
10 far as what -- where CO-OPS sat within NOS and
11 NOAA.

12 But, Joyce, I think that's all really
13 that I need to say today on it because we will
14 spend five minutes at the end more.

15 Lynne's saying more.

16 Okay, whatever we can do today on
17 this? All right.

18 So, I don't know, have people read
19 these or can we go ahead -- are there additional
20 comments or is there something that we can vote
21 on today to get out of the way and approved?

22 Yes, Susan?

1 MEMBER SHINGLEDECKER: I'm just going
2 to weigh in on our last attempt to provide
3 substantial comments on the National Charting
4 Plan.

5 When we tried to do it at the end of
6 the day of a meeting we found we didn't get quite
7 the meaningful comments and people later said,
8 oh, I wish I could have contributed more.

9 And so, we ended up doing a side
10 exercise. I might recommend that maybe we try
11 and everybody re-read it again this evening or
12 something. But, I just don't know that right now
13 is the best time --

14 MEMBER THOMAS: Is the time to delve
15 into it?

16 MEMBER SHINGLEDECKER: -- get the vast
17 input we really need for something of this
18 magnitude.

19 MEMBER THOMAS: That's what I was
20 getting the feeling, too. So, I think we can
21 probably table this for right now.

22 CHAIR MILLER: I think that's a good

1 suggestion. If everybody could, I know we have
2 dinner plans, but of everybody just, if you don't
3 review it thoroughly and didn't provide comments,
4 you might want to re-read and review.

5 I think we had a request for what
6 specific comments did we -- or sort of details
7 did we want and I don't think we've ever gone
8 anywhere with that.

9 MEMBER THOMAS: Right, with the
10 examples?

11 So, for those that -- I mean, I think
12 you all know that we did have one telephone call
13 this and Rich Edwing was on the line.

14 So, we did have a chance to run by
15 these comments by Rich and he very nicely went
16 through each one of these comments that we had
17 already provided.

18 We pulled out his answers. I didn't
19 include them but I do have a document that has
20 Rich's answers.

21 But, because when we actually submit
22 these, it will not include Rich's answers.

1 And just one more thing, we can handle
2 the examples and the two places Rich said it
3 would be really helpful to have specifics as far
4 as where we would like more details and more
5 examples.

6 And, we don't have any specifics yet
7 on that.

8 Sean?

9 CHAIR MILLER: Okay. Yes, I think
10 that's fine.

11 Anything else?

12 MEMBER THOMAS: Did you want to say
13 something, Sean? No.

14 CHAIR MILLER: Okay. So, with that, I
15 think we'll adjourn for the day. And, we will
16 reconvene tomorrow morning at 9:00.

17 (Whereupon, the above-entitled matter
18 went off the record at 4:25 p.m.)

19

20

21

22

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C E R T I F I C A T E

This is to certify that the foregoing transcript

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Court Reporter

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